no. 40.

Field Book.

of

W. L. Jepson

— " —

1923

If lost find please return to W. L. Jepson, 2712 Benvenue ave., Berkeley, Cal. and receive reward.

— Arctostaphylos myrtifolia Parry. The stems in center seemed very old. They were always dead on the upper side and with a cord-like band of living tissue on the lower side. They are very much flattened vertically, sometimes more so than others, but often remarkably thin and suggesting broad ribbons. These main stems are mostly 3/4 to 1 1/2 in. high and 2 to 5 lines thick. They are much contorted or twisted. They grow in a situation where the sun's rays raise the ground surface temperature very high in summer. It is not likely that the dying of the upper perhaps tissues is caused by sun heat; but it is true that the dead wood serves as a partial cover to the living

wood below. The intense insolation and the high temperatures must result in conditions of transpiration or water-loss which causes the strains which bring about the peculiar configuration of these ribbon-like structures; for they are twisted and turned on each other, and even curved or contorted into a full circle. Such contorted structures must result from tensions due to unequal water loss. (No. 996).

Bark gray or whitish, only the young branches red-brown. Cont. p. 7.

The plants form pure colonies. The shrubs give a red-brown color which is distinctive. On this account one can pick out its colonies over a considerable extent of country between Ione and Buena Vista. The colonies are sharply defined and sometimes the colony reaches

across the summit of a hill-top like a "fire-lane", so marked is it. These hills are rocky — broken red shale-like rock. They are covered with high chaparral (Arctostaphylos viscida, scrub Quercus vaccinifolia with an occasional Pinus sabiniana) or low chaparral (the pure colonies of A. mystifolia). The colonies are often roundish, 1/8 mile in diameter, or band-like (1/8 mile long and 80 yds. wide). The shrubs are mostly 3/4 to 1 1/4 ft. h. I would estimate that, from a point on the Buena Vista-Ione road I could see 1200 acres pure. see p. 12 infra. cf. vol. 39, p. 193.

— We went to Buena Vista from San Andreas by way of Burson and Camanche, thence over the Mokelumne River bridge. The river bank on the south side at this point is rock in horizontal and vertical cleavage so that the bank

suggests masonry. Fine Aesculus californica grow on this bank. A Fly-up. the Creek environs the scene. Old and large thrifty fig trees stand in the rich soil on the river bench on the north side. Returning, we took the road south from Jone which joins the road north from Buena Vista which we had followed on the north-going trip. On this return trip to San Andreas, we pass over a fine plateau, very level and fairly rich, easterly from Jone Valley, which has Quercus douglasii scattered over it. As I look at this assemblage of Blue Oaks which is very park-like I feel that the scene is an admirable one and superior to any of this species which I recall.

– On the way back, a little east of Valley Springs we ran into

six or seven magpies. It is not thus that one sees them here in Cal. In England, says Miss Saunders, one or two or three may be seen together; seldom more; so much is this the case that there is folk-rhyme reciting what will happen when you see 1, 2, or 3 magpies at once.

– Bats. The old stone building opp. the Metropolitan Hotel in San Andreas is a rookery for bats. Just before dusk countless bats issue from its eves; but they do not come out all at once, but in flocks at rather regular intervals. After the flights had taken place this evening Miss Saunders said there were still large numbers which had not come out, that she could hear them crying very distinctly – making a great noise. Neither Major Saunders nor I could hear them

which led to a discussion of the fact that certain sounds are keyed so high that particular persons cannot hear those sounds. See vol. 50, p. 54.

— On the trip out to Buena Vista we turned off the highway, down which we had come from San Andreas, at Burson and took a neighborhood road to Comanche. Just north of Burson there is a low hill-top beautifully gay with Hypericum concinnum and Helianthemum scoparium, especially the latter. As we stopped to botanize and draw, an old man came along, going to the station at Burson. He was not in a hurry and stopped to talk. His dress was shabby but his talk suprised Miss Saunders by its intelligence and reason, and she was further astonished to learn he owned an 160-acre ranch, — because he

looked like a tramp!

— Wind and the forest. The winter storms have blown down over 2 million ft. of Yellow Pine and Douglas Fir in the country north of Mammoth. — Supervisor Thomas J. Jones, Inyo Nat. For. June, 1923. (District Circular.)

— Arctostaphylos myrtifolia Parry. These shrubs grew on a red sandstone. Samples of the country rock were sent Dr. G. D. Louderback. See his letter of July 14, 1923. Cont. from p. 1. See also no. 9961.

— Cal. Bot. Collectors. L. J. Xantus. For him named Xantusia, a genus of lizards (X. vigilis; desert tracts of Cal. Mex. + L. Cal.). Family 8. Xantusideae of order Lacertilia (Lizards). From Encycl. Britt. 16: 285d. (Edition, last, about 1910).

— Whitney, J. D., His misadventures in science. cf. Harold French, Pop. Sci. Mo. July, '14, who dilates upon them a bit.

Berkeley, June 6, 1923.

— "I found that practically all the timber on Big Pine Creek was blown down, presumably by the storm of Feb. 11. The entire area above the second falls is a complete wreck. At least 75% of all the Jeffrey Pine is down. I estimate that in a distance of 1½ miles 700 mature Jeffrey Pine trees were blown down; these had an average diameter of 38 inches and contained 4 or 5 logs per tree." — Forest Supervisor Jones, Inyo Forest. (Bol. Dist. News Letter, 4: no. 21, 25 May 1923).

— Sudden fall of limbs of Quercus lobata. See letter to W. E. Horne, June, 1923.

— Davidson, A. He sends an Eryngium scrap to Parish for det. and says it comes from Palm Spgs. Parish sends scrap to us and writes his doubts of Lix. to him. See Davidson's letter [cont. p. 15.

Mt. Diablo, June 10, 1923

No. 9983. Quercus wislizenii A. DC.

A thick-headed round-crowned tree resting on the ground; at the Sulphur wash or spring, head of a fork of Marsh Creek near the divide from Clayton.

No. 9984. Aesculus californica Nutt.

The buckeyes were in wonderful bloom. To see these great crowns of the trees and the smaller ones of the shrubs, broad, rounded, swelling with hundreds of great flowering spikes — was sufficient to transform the country to a degree.

No. 9985. = Stylomecon heterophylla Papaver heterophyllum

Head of Marsh Creek.

No. 9986. = Trichelia Brodiaea laxa

Shade form; flo. smaller than the form of the open in flower color, deep blue, the nerves inside perianth at base slightly ming-

Upper Marsh Creek, Mt. Diablo

-ed; head of Marsh Creek.

No. 9987. clarkia ~~eucharidium~~ ~~concinnum~~.
Clarkia concinna.
Greene. Banks in wooded country; always on shady slopes, but in little opens, nearly always on broken ground or shelving ground, where the soil is loose or trickling. Fls. glabrous! save the anthers*

No. 9988. Lonicera hispidula
Head of Marsh Creek; along streams

No. 9989. Phacelia californica var. imbricata (Jepson). = P. calycosa (Gray).

No. 9990 (not used). Upper Marsh Creek.

No. 9991. Prunus subcordata Bth.
Not uncommon. No fruit seen.

No. 9992. Senecio aronicoides DC.
Open in the woods.

No. 9993. Ptelea baldwinii T. & G. var. crenulata Jepson. Along stream.

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* These thinly short-hairy.

Contra Costa Co. June 10, 1923.

No. 9994. Elymus glaucus Buckl.
This grass grew in an open on the wooded slope.

No. 9995. Potentilla glandulosa Lindl. var. wrangeliana Wolf.
Petals 2½ lines long, elliptic-ovate, white but cream-tinted, i.e. pale cream. With 9994.

No. 9996. Ribes menziesii var. leptosmum Jepson. Shrub 4-5 ft. h. Heavily fruiting.

No. 9997. Ribes
Shrub 4½ ft. h. Fruiting well but not heavily.

No. 9998. Delphinium

No. 9999. Calochortus venustus Dougl.

Upper Marsh Creek, Mt. Diablo,
June 10, 1923.

No. 10,000. Lomatium dasycarpum T. & G. Summit of grade, road to Tassajero.

No. 10,001. Calochortus pulchellus Dougl. Inside of petals quite hairy all over.

– Cichorium intybus. Chicory. 100 acres of it – a field near Walnut Creek.

– Cont. from p. 3. Samples of the country rock peculiar to the Arctostaphylos mystifolia formation were taken and submitted to Dr. Geo. D. Louderback, the geologist. See his letter in Jepson Correspondence, vol. 1½, p. 316.

Schneider's Work on Salix

– Salix sessilifolia Nutt. One has only to compare carefully Schneider's own statements in Bot. Gaz. 67, to realize how vague he is on the sect. Longifoliae. He is not at all accurate in his geographic names. (Kagon Pass, sic, and so on). However he excludes the vague S. fluviatilis and argophylla from Cal., for which I should be grateful.

– Salix cordata var. watsonii Bebb. C.F. Baker's 924 (Kings Canon, Armaby Co., Nev.) is det. by Ryaberg as S. watsonii; it has pedicels 3½ mm. long (but he says in his Fl. Rocky Mts. 2 mm.) 3½ mm. makes it S. mackenziana in his Fl., gynoecial stipe or pedicel is concerned.

– S. cordata Muhl. A spm. from Keene, N.H., L. J.C. Gilbert, is a good match for Abrams 4492, Yosemite Valley! Note the wonder-

but similarity in leaves! as well as fruiting catkins. S. cordata Muhl. represented by Bebb's Fountain dale, Ill., is well enough matched by Cusick 1845, easter Ore. - Schneider's carelessness is shown by his quotation of Jepson 2709 as Jepson 2957. see anb. S. Brewri, Jour. Arn. Arb. 1:96. My sheet of Brewri was before him!

— Fires, Indian. Proclamation by Gov. Arrillaga, May 31, 1793, Santa Barbara, "About the serious damages that result from fires which every year the Indians start in the fields, etc"

- cf. Cal. Dist. News Letter, July 6, 1923.

- Orcutt, C. R., Is incurable. He writes me (1922) "to interest me in his plans". This time in a Knights of Columbus envelope, but I thought he was a true-blue Presbyterian or something like that!

[Cont. from p. 8]. in which he admits that the plant did not come from the desert; he made a mistake. This is a slight matter - but I felt it was characteristic of Davidson. See Davidson's letter, June 12, 1923.

— Cleveland, D. Collected at "West Branch, Butte Co.", Aug. 1882. (cf. Chenopodium carinatum in hb.).

- Lemmon, J. G. and Sara, were in San Rafael Mts., L. Cal., 6 May 1888. cf. Potentilla saxosa.

— Greene, E. L., in Pitt. 1:106, says he has never seen alive Ivesia pygmaea but has a spm. from Sonora at Truckee. This bears on my contention that Greene was never in the field in the Sierra Nevada except along C.P.R.R. and at Calaveras Big Trees, and bears upon the problem or interpretation of many of his species.

10 Sonoma Canon, Kenwood, C.,

— Drove to Kenwood and into Sonoma canon. Milo S. Baker lives near the mouth of the canon. We are his guests this day.

No. 10,002. Scutellaria californica Gray. Canon hillslope, steep, open in woods. Cor. white, 8½ lines long. Lower pair of stamens the longer, attached at summit of tube; upper pair of stamens inserted much higher - at summit of throat. The stamen and style arrangements are as in S. angustifolia No. 9916 from San Andreas. Edges of filaments not quite so hairy perhaps.

Corolla finely short hairy with spreading hairs. Inside of corolla with long hairs (pilose) in throat!

800 ft. June 28, 1923 Sonoma Co. 17

No. 10,003. Eriogonum viminieum

Outer segments per. obovate, inner ones oblanceolate, both obtuse. Hillslope

No. 10,004. Antirrhinum vagans Gray.

Lower pair of filaments dilated at base, the summit of the dilation densely short-ciliate. Tube at summit long-hairy or pilose, sparsely - but conspicuously so. Cor. lavender, 7 lines long. Spur extended between lower pair calyx-lobes. Upper or odd sepal much the larger, the two pairs nearly equal. Ovary hairy with gland-tipped hairs. Style bent at tip. Filaments dilated at apex, all glabrous except as noted above. Steep hillslope in openly wooded canon.

no. 10.005. Collinsia tinctoria Hartw. Upper pair of filaments scabrulous on upper side otherwise both pairs glabrous. Upper lip very short, truncatish, recurved, with cross bands of purple Lower lip purple-dotted and lineate. Calyx-segments almost distinct, equal in length, almost equal in breadth. Wooded cañon side. All the lobes except the keel crenulate. Upper lip recurved abruptly from throat, at this point with a very marked ridge or sharp crest, which looks fleshy but is not or scarcely.

No. 10,006. Brodiaea leptandra (Greene) Baker. Perianth tube green outside, a distinct green band running down each perianth segment. Anthers notched base and apex, 4 1/2 lines long, the staminodia 1 1/2 lines longer, very long and narrow, edges inturned, notched at summit, closely approximate around and concealing anthers. Inner perianth segments 2 1/2 lines broad, much broader (!) than the outer! these latter about 1 1/2 lines wide. Per. tube 4 1/2 lines long, segments 11 1/2 lines long! Anthers yellow; staminodia white; perianth purple. Plants 7 to 26 in. high. Flowers closing at night in raceme! Baker says they close at night in the field. B. coronaria remains open.

– Cont. no. 10,005. Throat remarkably saccate on upper side. The corolla being declined a

Sonoma Cañon, Kenwood,

little below the horizontal, the throat is almost at right angles to the short tube. Wings of lower lip pilose in central area.

No. 10,007. Lotus glaber Greene. Rocky outcrops. (L. scoparius Ott.)

No. 10,008. Linum spergulinum Gray. I do not notice any stipular glands to leaves. Sepals with one edge minutely glandular-ciliate! Petals with a horn-like process at each angle of claw, turned outward and downward; middle appendage oblong, erect, ciliate or hairy. Cor. white, slightly pink. Infl. paniculate. Petals round-ovate, notched at apex usually, 3 lines long. Stems slightly hairy in the forks. Not glaucous.

No. 10,009. Godetia amoena Lilja. Openly wooded hillslope. Cont. p. 23.

No. 10,010. Calochortus amabilis Purdy ~~pulchellus Dougl.~~ with 10,009.

No. 10,011. Polygala californica Nutt.

No. 10,012. Euphorbia crenulata Engelm.

No. 10,013. Rosa gymnocarpa Nutt.

No. 10,014. Clarkia unguiculata ~~elegans Dougl.~~

No. 10,015. Rhus diversiloba leaves with insect attacks.

No. 10,016. Cotyledon laxa B. & W. var. Cor. saffron. Calyx-lobes triangular-acute. Stems reddish. Fils. all equally but not strongly dilated downward, about subulate. The color of the corolla is (Cont. p. 23)

=Dudleya caespitosa

Sonoma Cañon, Kenwood,

- Aquilegia tracyi Jepson. M.S. Baker says he has seen this on Mt. Diablo.
- Pinus tuberculata Gord. is on Hood's Peak acc. to Baker, M.S.
- Mayacmas Mts. is a name to be found on the County map of Sonoma hanging in the old mission at Sonoma. It has a date (about 1867 as I remember). The name applies to the range n. of Mt. St. Helena.
- Verbascum blattaria L. Sonoma Cañon, in fl.
- Oenothera ovata Nutt. Baker has a spm. from Ukiah.
- Arctium lappa Gualala River, near mouth. M.S. Baker. He coll. a spm.
- Viola hallii Gray. Willits, M.S. Baker.
- Veratrum fimbriatum - Gualala + 2 mi. n. of Stewart's Pt. Middle of segs. yellow, narrowed at base. Stem base bulbous, covered with coarse fibres. Pedicels blue

c/, 800 ft. June 28, 1923.

No. 10,017. Sedum spathulifolium Hook.

[Cont. from bottom p. 21, as in nos. 9739, and 9780 (= caespitosa, also Montery. (C. caespitosa of Man. 452)) Petals similarly ridged on back, slightly united at base, same shape* about (oblong-ovate, acute). Plant as a whole reddish (including calyces). Not glaucous or scarcely so. Stems erect from the rozette; also in 9780; in 9741 ascending (C. farinosa) and markedly so in 9407 (C. farinosa). Corolla in 10,016 is markedly contracted at apex and the tips open very little in anthesis.

[Cont. no. 10,009. The anther-cells dehisce from apex and contract first above, as in Clarkia concinna]

- Brunella vulgaris. Sonoma Mt. (M.S. Baker)
- Viola douglasii - Common at Kenwood.

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* No. 9780 has them broader at apex, a little.

— Frank W. Peirson of Pasadena, who has sent so many collections for the Flora of California is here in Berkeley, on his way to the northern Redwoods. He is most agreeable in his manners, with a fine sense of humor and thoroughly scientific in his attitude. He is about 5 ft. 10 in, smooth-shaven, save a mustache, and of fair complexion. [He saw my method of building up, about heavy parts of specimens, with bits of driers in drying and said he had never heard of that.]

— In his articles on Forestry (Univ. Cal. Chron. 1923), C.H. Shinn says Dr. Albert Kellogg made a journey with Audubon in Texas. This must have been Audubon's son, John W. Audubon. Look up his Cal. Journal. — Not so! the elder Audubon. See p. 32.

No. 10,018. Cirsium ~~edule~~
Strawberry Cañon, 7 ft. high.

No. 10,019. Heuchera micrantha Dougl. Shady north bank, rocky.

No. 10,020. Galium aparine L.

No. 10,021. Physocarpus capitatus
Near Sugar Loaf.

No. 10,022. Smilacina stellata var. ↑ sessilifolia Nutt. Fruits greenish-white with 3 broad purple bands reaching from base nearly to summit (but leaving a distinct area at summit), one band to ↑ free each lobe of corolla. In shade woods. The fruits already show signs of becoming purplish or dark other than on bands.

No. 10,023. Micromeria chamissonis (Bth.) Greene. Satureia douglasii Briq.

eqr

— Insects and native plants.

Eschscholtzia californica often "bleeds" from its root-crown, giving rising to a fluffy whitish or foamy mass, a little like soapsuds. This is caused by the attack of the spittle bug, a member of the Cercoptidae.

— Botanical Collectors in California

Three of the collectors on Pac. R. Survey who were M.D's might be had from Cyclopaedia of American Medical Biography (1912). by H. A. Kelley M.D and American Medical Biography (1919). With W. L. Burrage. Address 1406 Eutaw Place, Baltimore, Md. cf. current Who's Who for verifying addresses.

No. 10.024. Grindelia camporum Greene. At Little Oak Ranch.*

— Native weeds. Asclepias mexicana is becoming abundant over 10 or 15 acres of the southwest corner of the old Broughton tract. This is now prime orchard; and it may be that cultivation helps this species.

No. 10.025. Corylus **cornuta var. californica** Sonoma Cañon, June 28.

See p. 16, for trip.

* Even in the youngest flowers the pappus-bristles loosen quickly, so that the exact number is not so easy to make certain; the number appears to be 4.

Berkeley. July 15. 1923.

✓No. 10,026. Phacelia nemoralis Greene. S Strawberry Canon

No. 10,027. ~~Godetia~~ Clarkia amoena Don. S Strawberry Canon.

– Development of Botany in Cal. a paper by Dr. Chipman published in Proc. of the Cal. Med. Soc. See a separate preserved in "Botanical Pamphlets" in U.C. Library (call number = OK, 149, P2).

– David Douglas. His Journal, as published in the Companion to the Botanical Magazine, has been reprinted in the Oregon Historical Society's Quarterly, vols. 5 and 6 (1904 and 1905). The Journal of Dr. Scouler (which contains references to Douglas) is printed in vol. 6 (1905).

– Brandegee, K. She had a keen collector's eye; one of her great finds was Sedum pinetorum Bdg.

– Rosaceae. Chesnut & Drew collected a number of things at this point. It is on Reed Creek, tributary Middle Fork Tuolumne River. See Big Trees Sheet, U.S. Top. Survey.

Berkeley to San Andreas.

Aug. 3, 1923.

– Left Berkeley 5:30 a.m. Ran to north side of Mt. Diablo and thru Clayton to the pass to headwaters Marsh Creek. Down Marsh Creek, past Dr. Marsh's old stone mansion built from country rock in Spanish-Californian days, to Old River. Near Old River collected nos. 10,0028 to 10032.

✓No. 10,028. Lycopus americanus Muhl. Corolla white, 3 lobes of lower lip and single lobe of upper lip subequal. Lateral lobes lower lip laterally spreading. Upper lip not notched or lobed. Corolla thus appears 4-lobed. Stamens 2 (lower pair). Corolla tube filled with horizontally spreading hairs (white) which

close the tube as with a fine mesh or barrier. Plants erect, freely branched, 2 to 3 ft. h.

No. 10,029. Potamogeton nodosus Poir. apud Lam. Stamens 8; 2 anthers beneath each sepal. Sepal somewhat shield-shaped, remarkably like the scale in a staminate catkin of Cupressus or Pinus, with two stamens inserted on each claw. The stamens are so "fat" that they appear from the outside to be inserted lower than the sepals. Pistils 4, but 3 or 2 at summit of spike.

No. 10.030. Allenrolfea occidentalis Ktze. Shrubs common along canal west of Old River bridge. Bushy plants, 3 to 6 ft. high!

No. 10.031. Jussiæa californica Jeps. = J. repens peploides

Filling the canals for miles and miles between Old River and Middle River. Stems mostly simple or little branched, so far as I noticed, 2 to 6 ft. long! These plants must transpire very rapidly, because when lifted out of the water, the leaves began to curl almost instantly, i.e. the emersed leaves. This phenomenon is so marked that the plants might in a way be called "sensitive plants". Stamens 10. Fls. yellow, rather showy.

No. 10.032. Typha la

Stems 6 to 7 ft. tall.

Berkeley to San Andreas, Aug 3, 1923.

– Ailanthus glandulosus Desf.
Spontaneous near Valley Springs, Calaveras Co.

– Mentzelia laevicaulis Lindl. Near Calavers River Bridge, n. of San Andreas. Also Kentucky House.

No. 10,033. ~~Gilia~~ pubescens Stend.
Dry hills, near Valley Springs. = Navarretia pubescens H. + A.

No. 10,034. Chlorogalum angustifolium Kell. Dry flat near Valley Springs, Calaveras Co.

No. 10,035. Hypericum concinnum Bth.
Wallace, Calaveras Co. 300 ft.

[Cont. from p. 24. Shinn was a pure compiler or plagarizer. He stole right and left. This represents no investigation by him, unless the taking of the note from Greene's biography of Kellogg is such.]

Calaveras Co. Kentucky House, South Fork Calaveras River, Aug. 4, 1923. 900 ft.

No. 10,036. Boisduvalia densiflora (Lindl.) S. Wats.

No. 10,037. Cephalanthus occidentalis. Waters edge of the river.

No. 10,038. Lippia nodiflora var. rosea (D. Don) Moldenke. Flood-bed of the Calaveras.

No. 10,039. Lythrum hyssopifolia L.

No. 10,040. Microcala quadrangularis Griseb. Ovary superior. Fruit a capsule. Corollas deciduous – all gone.

No. 10,041. Epilobium
Stigma large-cylindric, very large for the flower.

No. 10,042. Euphorbia ~~hirtula~~ Supina Raf. var. typica ~~Engelm.~~ Stems ascending! Wings on involucral glands H, white, continuous around involucre but with an interval. Ovary faintly whitish-strigulose. Sandy flats.

Kentucky House, S. Fork Calaveras Co 900 ft.

No. 10.043. Hemicarpha micrantha var. minor (Sabrad.) Fried. Most sand-bed in shade of willows.

No. 10.044. Eleocharis acicularis (L.) R. & S.

No. 10.045. Cyperus

— Mr. McMiders says: "Yes, I can "call" swans. Swan flocks are not so uncommon and when they are migrating overhead they can be made to stop and circle and come down. Most all aquatic fowl can be "called." There is one exception; that is the pelican. The pelican is a wary bird. Teal can be called by a whistle; but the whistle must be just the right pitch. If it is a little too high or too low, off they go. It must have the right tone and yet have "carrying quality". Enormous numbers of ducks

as River, near San Andreas, 4 Aug. '23

and geese still come in to the great marshes north of Marysville Buttes. Mallard ducks will eat acorns.

I demonstrated this to a sceptical friend in the hills back of Antelope Valley, where there is a pond frequented by large numbers of ducks. Several were killed and their gizzards showed acorns.

There is one bird that will fight — the Sandhill Crane. A wounded but not disabled Sandhill Crane is a somewhat dangerous bird to approach unarmed." This McMiders belongs to the cement works, now being started near San Andreas.

No. 10.046.? Pinus sabiniana seed.

San Andreas, Aug. 4. 1923.

– I came thru this foothill region in 1890, July. There were numerous well-kept foothill farms where activity agriculturally was most evident. Every ranch had its cattle, milk and butter were products. Home orchards were everywhere.

This time one sees everywhere abandoned farms, or farms ill-kept, or with the buildings falling down from neglect. The census returns show the marked falling off in population in these foothill counties.

When we reached Dorrington we asked for butter at the little store. The salesman was sorry but they had just run out. They would have some more in, in three or four days. Did they import their butter? I asked. Oh, yes; from Modesto. But you have many many cows here? Yes, he replied, but we have no facilities for making butter. This astonished me. Apparently he never had heard of a churn with a boy on the business end of it.

Dorrington, Calaveras Co.
Aug. 6, 1923.

No. 10.047. Galium.
Leaves in 6's, neverosate.
Corolla greenish. Shady woods.

No. 10.048. Pyrola picta Sm.
Calyx-lobes very acute. Cor. dull white or brownish flesh-color. Anthers with pores at apex, suspended from the apex by the filaments. Stamens ascending-approximate on upper side of flower. Style slightly clavate-dilated towards apex, with a very narrow margin or collar beneath the small stigma. Stigma not as wide as style. See p. 39. See p. 52.

No. 10.049. Gayophytum diffusum T. & G. Sandy opens in the forest. The flowers are extremely sensitive to direct light. On the slope below my camp the plants form a miniature garden. They are 1 to

Dorrington, Calaveras Co.

2 ft. high. When the sun struck them the flowers opened and all turned directly toward the sun so that they stood horizontally. The effect of heliotropism was very marked. When taken out of the ground for drawing the plants were the change of position caused them to respond in a few minutes. The other species of Gayophytum, which is also in flower, Tyr. showed no obvious or at least marked heliotropism. See no. 10.050. Cont. p. 41, 64.

No. 10.050. Gayophytum ramosissimum T. & Gy. Plants ¼ to 2 ft. h!, common, apparently not so abundant as 10.049, but this record may be due to faulty observation, since it is relatively very inconspicuous. Its habit, branching above the base, is the same as 10.049. See p. 67.

– Pyrola no. 10.048

cont. The "stigma" really consists of 5 slender stigmas agglutinated! so that the fascicle looks like one or sometimes 3. Cont. from p. 37.

No. 10.051. Agastache urticifolia Kttg.

Calyx lavender, its teeth subequal, lanceolate, acuminate. Corolla dull white; ↑broadly middle lobe lower lip very broad and short (truncate), as if short-fanshaped, laciniate. Lateral lobes and lobes of upper lip about equal in size, about the same shape, all erect, but not equal length, the upper standing higher. Middle lobe lower lip deflexed-spreading, somewhat cup-shaped. Lower pair of stamens the shorter, ascending under upper lip and erect; upper pair the longer, curving outward between the filaments of the lower pair. Plants with many stems from the base, 3 to 5 ft. high. Calyx-tube 15-nerved. Stamens and style glabrous.

Dorrington, Calaveras Co., 4800 ft.

Corolla essentially glabrous (obscurely and minutely pubescent outside, the palate weakly and obscurely hairy) dry flats or somewhat moist soil. Lower pair st. exserted, upper much exserted!

No. 10.052. Plevicoospora fimbriolata Gray. Roots apparently very deeply seated. Petals 4, distinct or essentially so. Sepals 4, distinct. Stamens 8. Petals and sepals a little laciniate toothed, saliently and remotely so but rather inconspicuously so. Plants white, the stems in clusters Placentae 8.

No. 10.053. Lappula velutina Piper. Cor. purple; blue corona at throat of 5 distinct conspicuous white 2-lobed crests. Nutlets spiny over back and especially the marginal angles; spines hooked-barbed at tip. Stamens 5, spreading horizontally! in tube, on very short filaments.

Cont. p. 44.

No. 10.054. Phacelia grisea phyllla (Brand). This remarkable for its few simple erect form and rather short stems. Opens on borders of forest, sandy soil.

No. 10.055. Sidalcea glaucescens Greene. This form is remarkable for the number of leaves with nearly distinct divisions which it bears. The flowers are very scattered, very loose; they look quite unlike, not at all like S. malvaeflora. The stems are decumbent or ascending, many from a branched but very compact root-crown which is marvelously tough and hard, especially hard. It ranges as high Silver Valley.

- Gayophytum ramosissimum Cont. no. 10.049. It is very wonderful to see a slope covered with this plant burst into flower from closed buds

Dorrington, Calaveras Co., 4800 ft.

when the sun strikes them. At once the bees are at work. They visit or rather inspect innumerable blossoms in incredibly short time, but they linger for nectar an appreciable instant only on about one flower out of seven. The others they poise before only a fiftieth or hundredth of a second, and are off to the next. Either their sense of smell or of sight tells them that the flower has no honey-nectar. Apparently they do not gather the pollen.

Corolla bowls pink in age. Flowers open only for one day. At midday they begin to close and are all closed. It is remarkable and interesting that in shady spots the flowers tend to stay open all day!

Aug. 7, 1923

= L. confertus Kell.

No. 10.056. Lupinus torreyi Gray. (det. C.P.S.).
Sandy flats.
(L. lepidus var. torreyi Jepson).

No. 10.057. Potentilla fusca Jepson.
Stamens 10, 5 long, 5 short; filaments dilated. Petals white, cuneate, truncate. Pistils about 6. Sandy flats.

No. 10.058. Eriogonum umbellatum var. stellatum Sandy flat, border of mdw.

No. 10.059. Eriogonum spergulinum var. reddingianum
Inner segments perianth erosulate-truncate or notched, a tooth in the notch. Stamens 9.

No. 10.060. Astragalus bolanderi Gray
Keel 2/3 as long as banner, the wings mid-length between, their tips tending to coil. Banner narrow, notched

Darrington, Calaveras Co., 4800 ft.

or cleft at apex. Fls. white. Sides of banner turned back. Sandy flat. Stems decumbent. See below.

— Astragalus Bolanderi Gray. Cnt. no. 10,060. The flowers are ascending in a close short spike. After fertilization the spike "opens up" by the horizontal spreading of the flowers, or rather of the pedicels, the fruit soon growing rapidly. This is an interesting observation since the freshly-flowered spikes are so dense, the ones just past anthesis so loose! in appearance. The axis has meantime lengthened a little but not so very much.

— Cnt. no. 10,053. This mechanism must be, or must have been of biologic importance. The "furry" crown closing the tube above, except for the central aperture. The style is very short and stands below the anthers.

No. 10,061. Galium

Deep woods, in forest debris. rotting

No. 10,062. Mimulus torreyi Gray.

See p. 69. Corolla pink, 8 lines long, 2-lipped by position of lobes rather than by structure. Lobes (5) subequal, the lower obscurely emarginate. Upper lobes slightly smaller than the lower, not emarginate. Two yellow narrow-oblanceolate yellow bands running out of throat onto palate. Upper side of tube dark pink, lower side yellow. Anthers connate in pairs, the cells of each anther with a thick ring on each side toward apex. Calyx teeth subequal. Calyx-tube somewhat plicate, definitely but not extremely. Stamens and style glabrous. Cor. throat lower side with short straight spreading hairs. Herbage glandular-pubescent. Drawing made of this.

Dorrington, Calaveras Co., 4800 ft.

No. 10,063. Mimulus

Same as 10,062. These plants are figures, growing by hundreds in the litter layer under the pines in little swales. They are exactly like 10,062 but dwarf in vegetative body; the corollas usually the not always smaller; but not relatively as small, by far, as the vegetative parts.

No. 10,064.

This campanulaceous plant grew in a little colony on the flat in an open in the forest.

No. 10,065. Rudbeckia

Meadow flat. 4 ft. h. Ovaries with a scaly crown. "Spike" dark greenish brown. Rays 1 3/4 in. long.

No. 10,066. Aconitum columbianum

Two lower sepals lanceolate; lateral ones rounded-obovate; each sepal of both sets (Cont. p. 50.)

— A lady here, Mrs. Derge, who has an amateur's interest in native plants said that she found the books with pictures so much more helpful. I acquiesced but pointed out that pictures may in many cases be very misleading. A drawing is a picture of one individual of a species only; the number of individuals of that species are to be numbered not by hundreds, nor by thousands, nor million, but at least by billions or trillions. Over the range of the species conditions vary, sometimes so much as to cause a considerable range of variation. Moreover no two individuals are exactly alike in any case, so great is the infinity of variation. — On the other hand a well-constructed diagnoses of selected chosen words covers the species as a whole. It is a description of a species, not of an individual. It is the business of the user of the manual to apply this diagnoses, to use his experience and judgment in interpreting it with precision. The

person who uses a manual merely to find a name for his plant is getting very little; and he is more likely to be wrong in his efforts than if he used it critically and appreciatively instead of by guesswork or hap-hazard method, or lack of method. For the monume is a compendium, an organized reasoned account of the relationships and indication of phylogeny, in so far as we understand descent. It contains in concise form innumerable facts concerning structure, all of which give evidences of relationship, and notes of habit or life-history which bear likewise on genetics and phylogeny. A botanical friend once told me that I was not getting "credit" for my observations and experiments with the life-history of plants because cast in "flora" form. That is undoubtedly true but one need not worry about credit, any more than about the taking of my

diagnoses by other authors. It is really a compliment; and when this is done by a capable man, an able man, there one is paid a very high compliment indeed. This is obviously so, for the judgement of such a man is to be lightly taken, but to be highly not-regarded. It has become too customary to make local floras and other papers by copying species descriptions. That one's original work is taken in this way is of no moment. Indeed the compiler is not aware that it is original. He supposes it has been diagnosis copied and is copying in turn because it is convenient. The objection is that such work is slouchy or even degrading to systematic botany. The work of the systematist should rest on higher standards. Diagnoses should be constantly studied and improved in the light of new and ever new investigation.

Dorrington, Calaveras Co.

Cont. 10,066.
unsymmetrical, the lateral especially so. upper strongly peak-hooded with a spreading lanceolate tail in front. This hood covers 2 nectaries (petals) on long slender claws; nectaries tubular, opening downward, with a flap or tail extending downward. Fls. white, turning a little pinkish. Meadows, along rivulet.

Horkelia tridentata Torr.

No. 10.067. / Potentilla tridentata Jepson

Petals white, obversely subulate that is very slender oblanceolate, 1 line long. Stamens 10. Pistils 6 or 7. Sandy flats, opens in the Pinus ponderosa—Abies concolor forest. Stems ascending!, 2, 3 or 4 to 10. Leaves mostly basal, the cauline reduced. Drawing made from this.

(few and) = P. congesta Hook. var. tilingii Jps.

No. 10.068. Potentilla glandulosa var. lactea Greene. = var. nevadensis Wats.

Petals pale cream-color or nearly white, roundish! Stamens 23, 21, 24, 24. Pistils numerous. Meadows.

4800 ft. Aug. 8, 1923.

No. 10.069. Agoseris grandiflora Meadow.

No. 10,070. Agoseris grandiflora This cichoriad seemed uncommon. Meadow flat.

No. 10,071.

This grass grew in opens in the Yellow Pine forest, on flats of granite sand. Cont. p. 69.

No. 10.072 Agrostis alba L. (det. B. Crampton, Mar. 1972)

This grass grew in the mdws. It is a loose, not compact sp.

No. 10.073. Danthonia californica var. americana Scribn.

Cont. p. 69. This grass grew in mdws.

No. 10.074.

This grass grew in mdws.

No. 10.075. Pyrola aphylla Sm.

The flower of this is almost like that of no. 10,048 (P. picta Sm.) The differences are as to slight details. I indicate the differences in parallel columns on next page:

Dorrington, Calaveras Co., 4800 ft.

No. 10,075.	No. 10,048.
1. Corolla brown-pink	1. Corolla white or greenish, or sometimes pinkish.
2. Upper petals spreading loosely above stamen mass, or only slightly approximate	2. Upper pair of petals closely approximate above anther mass, the tip incurving so as to make a sort of hood.
3. Fls. 5 lines long.	3. Fls. 3 1/2 to 4 lines long.
4. Pedicels 1 3/4 to 3 lines long.	4. Pedicels 3 to 3 1/4 lines long

The style is long and curved in each; the "collar" on style and the stigmas are quite alike in the two. It would seem a just explanation that P. aphylla is a parasitic degradation of P. picta.

No. 10,075. = Pyrola picta forma aphylla. No. 10,048 = P. picta.

– Corylus rostrata
Calaveras Big Tree Grove.

– Cornus Nuttallii Aud.
Calaveras Big Trees.

Calaveras Big Trees, Aug. 8, 1923. 4700 ft.

No. 10,076. Campanula

Corolla pale blue, its segments linear, widely curving. Fls. 9 lines long. Calyx lobes subulate, spreading horizontally or nearly. The anthers (long and slender) dehisce first; they are quite past before the elongating style has thrust out the long (3 lines long) stigma to its full length. Style and stigma 7 1/2 to 8 lines long. Corolla & calyx glabrous. Stems retrorsely scabrulous; leaves minutely puberulent. Filaments deltoid at base, approximate by their edges so as to form a conical cap in covering over the flat summit of the ovary.

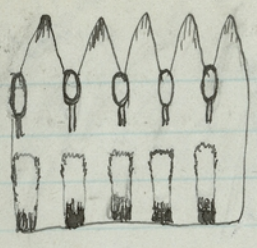
No. 10,077. Trifolium breweri Wats.

Plant with slender stems and somewhat delicate habit. Fls. white. Stems very thinly pubescent. Heads without involucre, a little racemose. Summit of ovary white-hairy. Calyx-teeth subulate, equ-

aling or slightly exceeding tube. Keel and wings clawed, nearly as long as banner. Banner obovate, rounded and emarginate at apex, not clawed, with a very (relatively in Trifolium) broad base.

No. 10.078. Gilia leptalea Greene. ssp. leptalea
Corolla bright brick-red, its lobes ovate, spreading rotately. Stamens inserted in throat of cor., unequal, the fils. rather short, but decurrent below in tube as obvious nerves. Fils. and style glabrous. Drawing made from this.

No. 10.079. Cuscuta subinclusa D. & H.
Cor. tubular, its ovate acute lobes rotate. Sepals ovate, acute. Scales roundish in outline, narrow laciniate. Anthers subsessile, at throat, their fils. adnate half-way down tube. Styles 2, quite distinct! This grew on Chamaebatia foliolosa, forming a thick spidery web over the plants.



No. 10.079. Corolla spread open, showing anthers and scales.

No. 10.080. Habenaria
exceedingly slender infl.
Woods.

No. 10.081. Taxus brevifolia Nutt.
14 ft. h. Three trees seen.
Deep cool moist depths of the Big Tree grove.

No. 10.082. Adenocaulon bicolor
With 10.081. Common in deep shades of the forest floor. See notes under 10.169. 10.082 identic with 10.169. Spm. of latter perhaps not made thru inadvertence.

— Calaveras Grove. This, the first-discovered and most historical of all the groves, is in a sad state of neglect. Cont. p. 65.

Big Mdw., Calaveras Co., 6600 ft.

No. 10,083. Potentilla gracilis Dougl.

This five-fingered species grew in a moist meadowlet about 3 mi. westerly from Big Mdw. Stamens 20, 19, 19, 20, 20, alternately long and short.

No. 10,084. Sagina occidentalis Wats.

No. 10,084a stamens 6; styles 3. Juncus Chlorocephalus Engelm.

No. 10,085. Senecio triangularis Hook.

2½ to 3½ ft. h. By rivulet.

There is a good deal of leaf variation in this.

No. 10,086. Lewisia nevadensis (Gray) Rob.

Sepals becoming much enlarged and very fleshy in fruit: Pericarp very thin, coming off like a cap; circumscisile near the base. Sepals oblong-elliptic, very obtuse.

No. 10,087. Ligusticum grayi C.&R.

Root with an intense or penetrating unagreeable odor, which though disagreeable is aromatic, intensely aromatic, one might say. What does one mean by aromatic?

No. 10,088. Gayophytum ramosissimum T. & G.

No. 10,089. Mertensia ciliata Don var. stomatechoides Jepson. Cor. with the short stamens inserted at middle of tube; transverse scales inserted between their bases.

Silver Valley, Alpine Co., 7300 ft.

= L. confertus Kell.

No. 10.090. Lupinus bicolor Greyi Gray.

Sandy flats, abundant. Big Mdw.
(L. lepidus Dougl. var. Greyi Jepson.)
(Big Mdw. is near Onion Valley in Calaveras Co.)

No. 10.091. Eriogonum spergulinum Var. reddingianum

Big Mdw. Sandy flats, abundant.

= Navarretia

No. 10.092. Gilia divaricata Torr.

See p. 87. See p. 63. This low plant is very abundant on the flats, tho' very inconspicuous.

No. 10.093. Gilia leptalea Greene. ssp. bicolor Mason & A. Grant

Silver Lake.

This is remarkably like 10.099. The differences between the two may be found contrasted on p. 62; 87 also. See p.

No. 10.093a. Polygonum

Silver Lake.

No. 10.094. Linanthus ciliatus Greene.

See p. 61. Silver Lake. Cor. bright pink.

Aug. 9, 1923. (Silver Lake is in Silver Valley).

No. 10.095. Phacelia hydrophyllioides Torr.

Silver Lake. Cor. lobes rolled under from each side so as to make pointed corolla-lobes, the corolla thus a little star-shaped. At any rate this rolling under of the lobes gives the corolla a peculiar appearance. Stamens exserted. Cor. blue. Cont: p. 63.

No. 10.096. Muhlenbergia filiformis Rydb.

This grass forms the densest closest turf of any grass I know. Silver Lake.

No. 10.097. Agrostis hiemalis

This grass grew in a moist flat on border of Silver Lake.

No. 10.098. Madia glomerata Hook 6/4/63 det RCB.

This madiad plant grew with preceding no.

No. 10.099. Gilia capillaris Kell.

~~Gilia leptalea Greene var. capillaris~~ (Kell.). This tiny Gilia is very inconspicuous in the first place, secondly it was thought at first glance to be a reduced state of no. 10.093. It was soon seen to be distinct. Cont. p. 61. Silver Lake.

Silver Valley, Alpine Co., 7300 ft.

No. 10,100. Gayophytum ramosissimum T. & G.

No. 10,101. Carex

Shores of Silver Lake, Silver Valley.

No. 10,102. Epilobium ~~anagallidifolium~~ glaberrimum Barbey var. latifolium Barbey

Herbage glaucous! Silver Lake, Silver Valley.

No! = E. glaberrimum Barby. latifolium Barby not

No. 10,103. Rumex montigenitus Jepson

Silver Lake, moist shores.

No. 10,104. Juncus

Stems twisted! Silver Lake, Silver Valley.

No. 10,105. Streptanthus tortuosus Kell. var. orbiculatus Hall.

Silver Lake, Silver Valley.

No. 10,106. Mimulus primuloides Bth. Cor. lobes roundish, all same size and shape essentially, all notched. Cor. distinctly 2-lipped nevertheless by position of lobes. Calyx teeth short, only a little plicate. Anther valves bristly on margin! Palate and folds in throat densely short-hairy with erect hairs; the tube

palate spotted with inconspicuous yellow-brown dots, not very different in color from the yellow corolla. Filiform rootstocks branching freely, forming little "tubers" at the ends. The "tubers" are really fleshy buds, small compact buds composed of fleshy scales. These carry the plant over the winter. About 3 mi. w. of Big Mdw., Calaveras Co. No. 10,094.

– Cont. from p. 58. Calyx with scarious interials in tube; teeth as long as tube. Stamens exserted from tube, inserted in throat at summit of tube. Cor. bright pink with a purple spot on the base of each lobe. Fls. (Brown-) 6½ lines long. Stamens a little unequal; anthers yellow. or whitish

– Cont. no. 10,099. Cor. pale blue, 2½ lines long. Stamens unequal, inserted just below sinus of cor., not exserted. Anthers blue. Calyx-lobes slender, spreading, as long as tube. Calyx half as long as cor. Cor. throat a little over ½ length of tube.

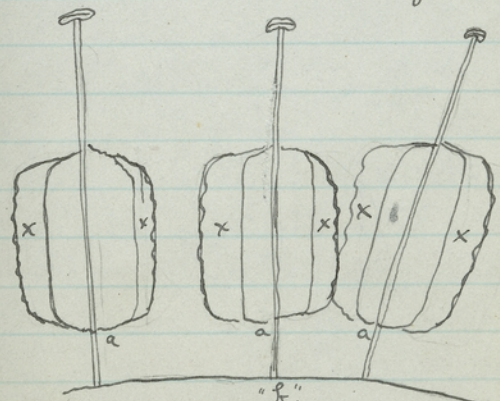
Silver Valley, Alpine Co., 7300 ft.

Gilia No. 10,099. capillaris.	Gilia No. 10,093. leptalea
– Leaves narrow but expanded.	– Leaves acicular
– Foliage more ample	– Foliage scant.
– Herbage densely glandular.	– Herbage thinly glandular.
– Calyx-lobes acicular, cuspidate, or linear and cuspidate.	– Calyx-lobes subulate or narrow lanceolate, acuminate.
– Calyx-tube oblong, the scarious intervals interrupted by a sharply defined green nerve	– Calyx-tube narrow-elliptic, the scarious intervals indefinitely interrupted by pale greenish-yellow nerves.
– Cor. throat broadly clavate.	– Cor. throat funnelform.
– Cor. limb 1 line broad.	– Cor. limb 3 lines broad.
– Style about midway of cor. lobes.	– Style as long as cor. lobes
Gilia capillaris Kell. No. 10,099	Gilia leptalea Greene. No. 10,093.
Cor. pale blue or whitish	– Cor. bright pink.
– Anthers blue.	– Anthers yellow.

Aug. 9, 1923.

– Cont. no. 10,092. Cor. 1 1/8 lines long, the lobes pinkish. Stamens unequal, inserted high, included. Calyx-lobes very unequal, coherently above the tubular part of the calyx.

– Cont. no. 10,095. Three of 5 stamens.



Very diagrammatic representation of no. 10,095, showing the very broad scales "x", ruffled free edge, joined to cor. tube opp. ruffle, and standing more or less vertical, joined across lower part of stamen at "a", the stamen continued downward to base of corolla at "b". There is thus a band at base of corolla free of scales. Style cleft half-way. Ovary densely hairy. Lower part of style

4000 ft.

a little hairy.

– Cont. no. 10.049. The people at this mt. resort insist on a "common name" for Gayophytum. It smiles on you o' mornings and frowns o' afternoons, its favor from one flower in any event is but for a day and so I told them to call it Ficklie Anne. The name "caught on" immediately; but then this concession certain persons were "carried on" to the importance of scientific names as to precision and indication of relationship.

No. 10,107. Hypericum anagalloides C. & S. Fl. 2 2/3 lines broad. Styles short, not divergently spreading as in H. concinnum. Stamens 10, 15,

– Pinus lambertiana Dougl. A large individual stands on west side of road at Dorrington. It is about 225 ft. h., 31.5 ft. circ. at 4 ft., 30.4 at 6 ft. It has a vigorous, but many main limbs are large, some broken off or stumpy.

Cont. from p. 55. The forest floor is choked with dead litter, down logs and rubbish generally. The little marble tablets on the trees are either fallen and lost or broken in great part. Few are in excellent repair.

I made out the following names:

– J. B. McPherson. 25 June 1866. W. F. B.
– Gen. Phil Kearney
– Commodore Cornelius Vanderbilt. 1876.
– C. B. Morse and Mother. Aug. 28, 1875.
– Frances E. Willard.
– Lady Isabella Somerset.
– Geo _____ (tablet broken).
– Empire State
– Jackson
– Henry Clay
– Mother & Son.
– Geo. H. Thomas. Maj.-Gen. U. S. A.
– J. M. Wooster. June 1860
– Gov. B _____ tablet broken.
– John LeConte. tablet broken.
– Joseph LeConte.
– Sir W. J. Hooker } Two not very large but vigorous trees side by side, s. of stream, on the higher bench.
– John Lindley }
– _____ swor _____ tablet broken.
– James King of William.
– Sir John Franklin
– Dr. Kane.
– Daniel O'Connell.

Calaveras Big Trees, Aug. 8. 1923.

4700 ft.

- Richard Cobden.
- John Bright.
- Thomas Starr King. Tablet fallen.
- John Hall, D.D. May 2. 1870. D.M.B.
- Colonel E. D. Baker.
- Mother of the Forest
- B. F. Weston. This is a new large tablet.
- Uncle Sam
- Prof. Asa Gray
- Dr. John Torrey
- Prof. James Dana B.S. 1867

} These 3 stand close together. Salem Witch is a fourth in the cluster.

- Salem Witch
- Bishop Kip. 1867.
- California. Aug. 9. 1865. Mrs. P. C.
- Broderick.
- America.
- Wm H. Seward
- Wm Cul ——— . Tablet broken.

On upper part of tablet are the words:

The groves w ——— June 1865.

- Florence
- Miner's Cabin
- Pride of the Forest.

It was most obnoxious to be charged an admission fee to the grove who are there persons who exercise proprietorship over trees 3000 years old?

Dorrington, Calaveras Co., Aug. 10. 1923.

- A small bird is working on the dead twigs of the Black Oak. It has a black band running over and back from the eyes, a white band above the eye, a black band on top of head; bluish gray back, pinkish brown under side; slender bill. Another bird had yellowish sides to body. A whitish-lined band below eyes. He feeds on insects under the dead bark and runs up and down vertical trunks with the utmost ease. These birds are quite tame.

?

There is also a woodpecker with whitish or gray head and neck, the rest of him gray-brown, the primaries white.

Cont. from p. 38.

Gayophytum diffusum T. & G. No. 10,049	Gayophytum ramosissimum T. & G. No. 10,050.
- Corolla 4½ to 5 lines broad.	- Corolla 1½ to 1¾ lines broad.
- Petals rhomboidal-ovate.	- Petals sub-orbicular
- Petals white with 2 small yellow dots at base	- Petals white, obscurely greenish-yellow at base.
- Ovary glabrous	- Ovary finely pubescent.
- Calyx-lobes closely reflexed in pairs	- Calyx-lobes reflexed-spreading, all distinct.
- Petals after anthesis turning pink!	- Petals after anthesis turning brick-red!
- Anthers white.	- Anthers white.
- Stigma truncate.	- Stigma truncate.
- Herbage glabrous.	- Herbage puberulent except old parts.

Dorrington, Calaveras Co., 4800 ft.

No. 10,108. Aster

Meadow flat

No. 10,109. Helenium bigelovii

Very abundant in the mdws.

No. 10,110. Potentilla douglasii Greene. = Horkelia fusca Lindl.

Mdws. Abundant. Stamens 10; fils. dilated broadly; those alt. petals the longer. Petals white, emarginate-obovate, notched, rotate. Calyx-lobes reflexed; bractlets rotate, spreading beneath petals and (as it were) supporting them. Pistils 8.

No. 10,111. Hypericum formosum var scouleri ~~Hook~~ Coulter

Mdws. Common.

No. 10,112. Euphorbia serpyllifolia Pers. Forest floor, sandy open. Involucres white, laciniate. Stems a little ascending, from an annual root. Drawing from this. Commonly prostrate or essentially so.

- Cont. from p. 51. No. 10,071. It has few, 1, 2 or 3 stems rising, not erect, but just off the perpendicular, leaning one might say. One cannot say decumbent, procumbent or ascending, because the stems are straight from the tufted base. The infl. is a very close wand-like or narrow spike.

- Cont. from p. 51. No. 10,073. The stems arise from a very dense and closely tufted base. They diverge, but are ascending and straightish; the effect is very spidery, since they are so slender and so sparsely leafy.

- Ceanothus cordulatus Kell. Bushes 4 to 6 ft. h., twice as broad. Aspect of the shrub bluish-green. Common here. = C. pumilio R. Br.

No. 10,113. Chenopodium carinatum

About dwellings.

No. 10,114. Cryptantha affinis Greene

This borage grew along San Antonio Creek.

— Cont. 10,062. This flourishes well

Dorrington, Calaveras Co. 4800 ft.

in water in a tin can, here in the open forest camp laboratory. Even after lying around for twelve hours, it will recover when placed in water and continue to bloom for days.

No. 10,115. Gnaphalium palustre Nutt.

No. 10,116. Mimulus rubellus Cov.

Cor. red, with very narrow limb. Cor. 1½ lines broad. Upper lip notched; lateral lobes lower lip transversely oblong, truncate, notched or not notched. Throat yellow, red-purple-dotted. Moist banks of rivulets.

No. 10,117. Mimulus

Corolla yellow, upper lip white! Moist banks rivulets.

– Heracleum lanatum Michx.

Mdw. flat.

No. 10.118. Mimulus tilingii Regel.

Gravel riffles in rivulets

– Populus tremuloides Michx., San Antonio Creek.

No. 10,119. ~~Scirpus~~ Eleocharis bella (Piper) Svens. Moist beds of former winter pools.

No. 10,120. Carum gairdneri Gray.

Mdws. Very abundant, whitening considerable areas. Leaflets, 3, 5, 7; even on one plant.

No. 10,121. Epilobium brevistylum Barbey.

Petals pink! drying darker. Rootstocks with large fleshy bulblets. Rivulet in mdw.

No. 10,122. Gentiana simplex Gray.

Ovary long-stiped! Stigmas very broadly fan-shaped, or somewhat reniform! laciniate or toothed on edge. The anthers are borne at the notched

the filament, so that they are exactly base, but are reflexed on upside down in position. Corolla lobes finely toothed.

No. 10,123. Aster integrifolius Nutt.

This asteroid plant grows in open flats in the forest. Rays light purple; 10, 8, 8, 9, 11, 8, 8, 9. Disk-corollas yellow, aging brownish. Bracts of the involucre with their tips abruptly spreading at various stories. Involucre glandular-stichy and pubescent. Stems 1, from a creeping horizontal rootstock. Stems always ascending, never erect, this erect above the ascending base. Marginal corolls opening first, the anther column protruded first, then soon the style is thrust upward with its two long stigmas spreading. By this time the corolla has changed from yellow

(the staminate stage) to purplish-brown, (the pistillate stage) of anthesis.

No. 10,124. Polygonum

In colonies on flats bordering the swampy meadows. The flowers turn dark red, so that the colonies look like spots of burnt umber at a distance.

Trip to Pacific Valley, Aug. 13.

Left Dorrington a little after 7 am. The road upgrade to Big Meadow, Bear Valley, Silver Valley Reservoir, and Stanislaus Mdw. is a rather poor road for a motor machine but gets better the farther up one gets. Near Stanislaus Mdw. we stopped on a rise or shoulder where we have a fine view of the high mountains eastward southwards. Down below us is the gorge of the North Fork Stanislaus River. Beyond are the Dardanelles, singular (cont. p. 85)

Big Mdw., Calaveras Co., 6600 ft.

No. 10,125. J

This Compositæ grew in a hillside or swale meadow at the place called Black Spring.

No. 10,126. Orthocarpus lacerus Bth.

With 10,125. Calyx cleft almost half-way, a little deeper before and behind but not discernible markedly. Sacs of lower lip almost as high as deep. Anthecells 2, one above the other, nearly distinct.

Stamen: 9

Cont. p. 93.

No. 10,127. Holodiscus ~~discolor Maxim~~ microcephalus Rydb.

4 to 5 ft. h. Big Mdw.

No. 10,128. Scirpus

Moist spot in edge of forest, Big Mdw.

No. 10,129. Luzula

With 10,128

No. 10,130. Penstemon confertus Dougl.

See p. 89. Meadow flat, not wet, i.e. not swampy, Big Mdw. See p. 79.

No. 10,131. Agoseris cf. glauca.

Big Mdw. Dry flat.

No. 10,132. Wyethia mollis Gray

dry* flat, Big Mdw.

No. 10,133. Monardella odoratissima Bth.

Dry flat, Big Mdw.

No. 10,134. Eriogonum umbellatum var. umbellatum

Dry flat, Big Mdw.

No. 10,135. Eriogonum marifolium

Sandy flat, Big Mdw.

No. 10,136. Chaenactis douglasii H. & A.

det. Alma Wigart.

Sandy flat, Big M.

Scales of pappus broadly linear, truncatish, 2 1/2 to 2 15/16 lines long. Corollas white, the limb aging pinkish.

No. 10,137. Gilia aggregata Spreng.

See p. 78. Sandy flat, Big Mdw.

No. 10,138. Carex.

Sandy flat, Big Mdw.

No. 10,139. Pentstemon newberryi Gray.

This red-flowered species grew

* Not a swampy mdw, but sandy and medium moist. See also nos. 10,133-4

Silver Valley, Alpine Co., 7300 ft.

in the rocks at east end of Big M. Anthers woolly, connivent in pairs - folds of palate hairy. Sterile stamen hairy on upper side at tip. Three low lobes equal. Upper lip erect, notched. This plant is decidedly woody below for 6 to 8 inches!

No. 10,140. Streptanthus tortuosus Kell. var. orbiculatus Hall. See p. 81. Sandy flat among rocks, Big Mdw. Not uncommon thru this district. Physiologically bilabiate flowers. Upper pair of petals elongating sooner and always somewhat longer than lower. Similarly, upper pair of stamens longer than the lower. Short stamens have each a lateral position and barely show at mouth of flower, but their acute or emarginate anthers have up-turned points, this belonging to upper side of the flower.

No. 10,141. Juncus chlorocephalus Engelm. (det. P. Rubtzoff, Jan. 1972) Moist flat, border of Silver Valley Reservoir, 7300 ft.

No. 10,142. Glyceria elata (Nash) Hitchc. This grass grew in the

water and along shore. With 10,141.

No. 10,143. Galium This tiny slender species grew with 10,141.

No. 10,144. Luzula With 10,141

No. 10,145. Spiraea densiflora Nutt. With 10,141, but amongst rocks.

No. 10,146. Trifolium longipes Nutt. With 10,141.

No. 10,147. Pentstemon laetus Gray. See p. 80.

No. 10,148. ~~Collomia (Gilia gilioides Greene)~~ Allophyllum integrifolium (Brand) A. & V. Grant Silver Valley Reservoir.

Anthers blue. Stamens unequal, also unequally inserted, the longer inserted a little higher in throat.

No. 10,149. Phacelia ramosissima Dougl. Hillslope. With 10,148.

No. 10,150. Silene Petals white, 5-cleft at apex. Sandy flats on shoulders in very open Silver Pine forest. Near Stanislaus

Silver Valley, Alpine Co., 7300 ft.

Mdw.
Nov. 10, 151. Arabis platysperma Gray
with 10,150. See p. 81.

No. 10, 152. Salix scouleriana Barr.

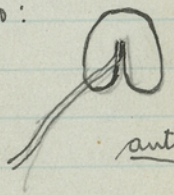
High shoulder on the slope of a ridge near Stanislaus Mdw. Probably a characteristic place for this species. 12 ft. h.

- Gilia aggregata Spr., no. 10, 137 cont. Corolla brilliant scarlet, its tube and throat 8 to 9 lines long, its lanceolate acute lobes about half as long. Stamens unequal in length, 3 long, 2 short, much exserted from throat. Cor. lobes rotate, in age reflexed. Stamens and style widely scarlet; anthers yellow. Very common in moist flats of the Red Fir belt.

- Potentilla flabelliformis Hook. no. 10, 156, cont. Leaflets 3, somewhat fan-

shaped or cuneate-obovate, toothed at apex or crenate-cleft. Stamens 20, 20, (Laciniate-20.) Petals yellow, broadly obovate, notched (or obcordatish). Disk yellow, its upper border black, the stamens inserted on the yellow part or on margin of black part. Moist flats on borders of lake above Pacific Valley, west. (swampy) Rootstocks stout, horizontal, colonies forming by their spread.

- Pentstemon confertus Dougl. no. 10, 130 Cont. Palate with two hairy spots, one on either fold. Sterile stamen glabrous. Fertile stamens and style glabrous. The hairs of the hairy spots are long. Sterile stamen dilated a little at tip. Anthers reniform, so: the cells explanate and divergent on antheris. Lower pair of stamens the longer, explanate first. Cor. purple or purple and blue, 5 to 5 2/3 lines long. Stems in great clusters from decumbent base.



anther.

Silver Valley, Alpine Co., 7300 ft.

- Penstemon laetus Gray var. roezlii (Regel). no. 10,147 cont. Cor. bright blue. Tube 3 lines long, throat 3 lines long. Upper lip very short, notched, recurved. Three lobes of lower lip equal, spreading in one plane. Folds of palate white, not hairy. Anthers horse-shoe shaped, dehiscent only half-way around. Style and all filaments glabrous. Above Bear Valley.

- Dodecatheon no. 10,163 cont. Cor. parts 4! Cor. 8½ lines long, light crimson, the base yellow, the yellow bordered above by a narrow zone of white. Anthers slightly united at base by a thin membrane. Swampy border of lake, the mud so soft one could not walk on the surface. I threw in a fine tree to get footing in reaching young the plants.

- Gilia aggregata, cont from p. 78. Center of limb whitish, the white running out onto base of lobe as an ill-defined

spot, or at least not with sharply defined border, merging with the speckled limb. This feature occurs only in occasional plants apparently. Usually the corolla is simply scarlet.

- Mimulus Lewisii, no. 10,164 cont. Cor. pink, 1 3/8 in. long. Lower lobe truncatish, upper lobe notched. Folds of throat yellow, brown-dotted, long hairy. Anther-cells divergent, short-bristly all around margin. Herbage glandular-sticky, sparsely

- no. 10,150 cont. Filaments dilated downward (subulate). Petals all white; aging slightly pinkish, obovate, rounded at apex, subentire (slightly crenulate).

- Streptanthus tortuosus var. orbiculatus, no. 10,140 Hoed. cont. Filaments all distinct. Calyx purple. Petals whitish with very broad purple veins.

Pacific Valley, Alpine Co., 8000 ft

No. 10,153. Orthocarpus pilosus Wats.
High rocky slope. w. of Pacific Valley. Calyx equally 4-cleft, each lobe and the tube below it ridged in such a way as to make the calyx 4-sided. See p. 93. Drawing from this.

No. 10,154. Arenaria
with 10,153.

No. 10,155. Juncus parryi Engelm.
with 10,153.

No. 10,156. Potentilla flabelliifolia Hook.
See p. 78.

No. 10,157. Lupinus
Forms a silver mat on the ground. Tamarack Pine forest, open, granite soil Volcanic rocks.

No. 10,158. Ledum glandulosum Nutt.
with 10,156; borders

of lakelet, on mt. slope above Pacific Valley west.

No. 10,159. Aster Andersonii Gray
This asteroid plant grew in moist greasy flats by lakelet, mt. side, w. of Pacific Valley.

No. 10,160. Senecio.
Discarded Insect-damaged L.R.H.
with 10,157.

No. 10,161. Hieracium gracile
Moist slopes, open forest, w. of Pacific Valley, 500 ft. above. Heads yellow, 3/8 lines broad. Rootstock ascending, not horizontal nor vertical. The rootstock is very distinctly such.

No. 10,162. Erigeron ~~salsuginosus~~ peregrinus (Pursh.) Greene ssp. callianthemus (Greene) Cronq.
This asteroid plant grew with 10,159.

No. 10,163. Dodecatheon alpinum Greene.
See p. 80.

No. 10,164. Mimulus lewisii Pursh.
See p. 81. Moist soil, near lakelet,

high mt. slope w. of Pacific Valley.

No. 10,165. Senecio scorzonella Greene.
With 10,164. Rays 5 (4 or 3).

No. 10,166. Salix eastwoodiae Cockl.
Swampy bottom near lakelet.

With 10,159. Colonizing swamp, evidently favorite habitat.

No. 10,167. Salix
Near Stanislaus Mdw.

Rounded shrubs 4 to 5 ft. high.

No. 10,168. Salix
(Alpine Co.) Near Bear Valley. Rounded shrubs 6 to 12 ft. high, the old stems continually working to bottom as ground all around as succeeded by new growth above. There is thus a zone or layer of dead stems at or just above the surface of the ground. The habit of 10,067 is similar.

[Cont. from p. 73.] and highly distinctive mountain masses with two great rock blocks topping them. Far south to the right is the Merced group of peaks — Cathedral Peak to the left and Unicorn to the right; further east are high mountain peaks which I cannot name, one in particular standing very high with horizontal summit and tall pinnacles* on its crest so that it is remarkably comb-like. To the east still is a very prominent somewhat conical and acutely-summited peak which is fairly isolated and distinctive. We go on past Stanislaus Mdw. to a set of 2 or 3 lakelets on the mountain side just above Pacific Valley (to the west). From this point we can look down 500 feet into Pacific Valley. It is a narrow mountain valley, running north and south with a Yosemite-like floor. It drains into the Mokelumne River (main stream), which we see a little north but still

* slender but rectangular — with parallel sides.

Pacific Valley. Alpine Co. 8000 ft.

Below us. Beyond the Mokelumne is the broad-backed mountain, "Border Ruffian." Rising up from behind its smoothly outlined summit are the high and picturesque peaks: The Nipple, Markleville Peak, Raymond Peak, Silver Mt., in order from north to south. Hid behind Border Ruffian is the less prominent Jeff Davis Peak.

The Aspen is common about Bear valley, above and below. On its smooth trunks, by the side of this old road, the names of passers-by have been carved. It is, as Miss Joyce Saunders justly remarks, a stronger and primitive habit of the race. The cave-dwellers had it in their pictographs on the stone walls of their dwellings; small boys universally exhibit the instinct by carving their names everywhere. It is a curious instinct.

- Everywhere about the region of Bear Valley to Silver Valley Reservoir and Stanislaus Mdw. the open slopes are often light tone with the Gilia leptalea Greene, - no. 10,093. It is abundant and continues downward to Darrington at intervals, but at all lower levels, Darrington to Big Mdw. the slopes are denuded by cattle. No. 10,092, another Gilia, G. diversicota, is common on dry slopes, forming colonies of several rods in extent repeatedly over miles and miles of territory. Like 10,093 it extends down as far as the forks of road above Calaveras Big Trees. Eriogonum no. 10,091 is common likewise all thru the region, often colonizing small areas repeatedly. It is common at Darrington and extends up to Silver Valley Reservoir and to Stanislaus Meadow or near there.

- Arctostaphylos Nevadensis Gray. Stanislaus Mdw., Alpine Co.; common in the Red Fir

forest.

– Near Pacific Valley. At lakelets at top of grade, 8000 ft., going west: Abies magnifica, Ceanothus cordulatus Kell.; Prunus emarginata Walp.; Pinus murrayana Balf.; Pinus monticola Dou; Sidalcea no. 10,055; Populus tremuloides Michx.; Potentilla no. 10,010 (st. 10; very abundant about Big. Mdw.; thin carpeting the forest floor in aspens; common all through the region and down as far as Dorrington.

On slopes nearly bare of Red Fir or Tamarac Pine or Silver Pine, these rocky slopes will be more or less covered with colonies of Prunus emarginata and Ceanothus cordulatus Kell.

See the above found on the nut. west of Pacific Valley, Stanislaus watershed. At the furthest point we reached, the lakelets either side of road (see U.S.

Top. map.) Tsuga mertensiana occurs.

[At Dorrington, see pp. 46–47 ante, our camp was a very delightful one. See a brief account of it in "Men and Manners", vol. 7, p. 80. This was while making drawings for the Manual.].

– Penstemon no. 10,130. Cont. from p. 74. This is P. oreocharis Greene.

Dorrington, Calaveras Co., 4800 ft.

No. 10,169. Adenocaulon bicolor
See 10,082. Heads consisting of a central cluster of ♂ fls., a marginal set of 3 ♀ fls. surrounding them. Ovaries of ♀ fl. very prominent, the upper part covered with tack-shaped glands. Stems all glandular hairy with spreading hairs bearing a gland at tip. Central cluster ♂ fls. 10.

Corolla in ♀ fl. as if 2-lipped; lobes 4; upper lobe incurved or hooded; lower lobe spreading (i.e. turned or curved towards center of head), lateral lobes incurved, their tips overlapping above style. Upper surface of leaves green and subglabrous, lower surface white-cobwebby.

No. 10,170. Pterospora andromeda Nutt.
Black Spring. Cor. urn-shaped, with 5 small lobes at mouth. Anthers with 2 long bristles extending downward from base of cells.

No. 10,171. Kellogia galioides
Corolla tubular-funnelform, white, pink-tinged on back of lobes; cor. lobes rotate. Stamens 5. Style 2-cleft at very tip. Cor. lobes lanceolate, acute.

No. 10,172. Camassia leichtlinii Watts.
Capsules strongly 3-lobed. Seeds black. Wet mdws. Bulbs very deep-seated. Per. lobes erect and connivent after anthesis, then (next stage) twisting obviously.

No. 10,173. Spiranthes Romanzoffiana approaching var. porrifolia
Lip with a couple of little rounded "hills" or bulb-like projections at base. Swampy mdw; common.

No. 10,174. Nasturtium = Radicula curvisiliqua Greene. Moist soil, valley flats. = Rorippa curvisiliqua (Hook.) Bessey

No. 10,175. Evernia
On Libocedrus decurrens.

No. 10,176. Galium
A tiny plant, moist border

of laklet above Pacific Valley, Aug. 13. Corolla lobes 3, round-ovate, subacute. Carpels glabrous.

No. 10,177. Solidago

Mdw. flat, not swamp, Dorrington

No. 10.178. Achillaea borealis ssp. californica

with 10,177.

No. 10.179. Castilleia miniata Dougl.

Calyx slightly more deeply cleft before than behind, the divisions of the lobes spreading laterally in pairs, subulate-lanceolate (very long and slender, a little longer than the tube. Lip deep green, the teeth long and slender, acuminate, incurved-ascending or incurved-horizontal, the middle tooth inflexed, that is closely reflexed but inside not outside! Cont. p. 94. Growing in fine masses in Azalea thicket, border of Frenchman Mdw. Bracts and fls. rose-pink — a very lovely shade of it.

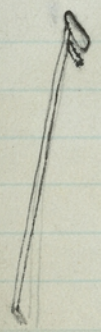
— Orthocarpus pilosus Watz. cont. Anthers brick-red! Stigmas capitate! Anther-cells lie side by side; one behind the other here.

no. 10,153

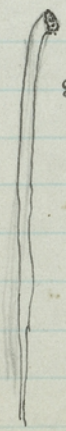
Anther and fil.

— Orthocarpus lacerus Bth.

no. 10,126 cont.



Stamen.



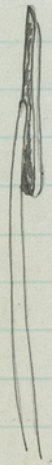
Style & stigma.

Pacific Valley, Alpine Co., 13 Aug.'23.

– Castilleia

no. 10,179

cont. Anther long and slender, attached to filament a little below middle, the cells lying side by side.



Note that the calyx lobes are cleft nearly to base into subulate segments.

no. 10,180. Tsuga mertensiana
Pacific Valley, 13 Aug.

no. 10,181. Pinus monticola
13 Aug. Near Stanislaus Mdw.

no. 10,182. Pinus murrayana
13 Aug. ~~Near Stanislaus~~ Mdw

Big

Dorrington, Calaveras Co., 15 Aug.'23.

no. 10,183. Abies magnifica
Near Stanislaus Mdw. 13 Aug.

– South of Dorrington about ¼ mile is Frenchman Mdw. It is on the waters of the North Fork Stanislaus River which is about 3 miles beyond. The north end of Frenchman Mdw. is closely cropped by cattle and our first visit was disappointing. The next time we tried to pick up the trail to the river and thus inadvertently got tangled in the bogs of the southerly part of the mdw. Here we found Drosera rotundifolia L. in abundance (no. 10,185). Vaccinium ~~occidentale~~ (no. 10,188) is fruiting. Its very dark purple berries are ripe. The bushes form little rounded colonies in the mdw. 1 to 3 ft. high. Around the margins of the meadow in the edge of the woods grew Rhododendron occidentale (no. 10,198) in heavy thickets. It had just passed out of

(cont. p. 99.

No. 10,184. Arabis perfoliata = A. glabra Bernh. Border of mdw., sandy flat.

No. 10,185. Drosera rotundifolia L. Wet cold swamp.

No. 10,186. Lupinus polyphyllus ssp. superbus ~~superbus var. sloa-gatus (det. C.P.S.)~~. Wet mdw. border, 3 ft. h. Fls. lavender blue. L. superbus Hel. acc. W.L.J.

No. 10,187. Galium Corolla 3-lobed, white. In Blueberry (Vaccinium shicket), middle of swamp.

No. 10,188. Vaccinium occidentale Gray. Swamp. Berry blue-black with bloom.

No. 10,189. ~~Saxifraga~~ Boykinia major Gray Petals round-elliptic, entire or 1 or 2-cleft-notched at apex, on same plant or even in one flower. Stamens 5, arising from a yellow disk. Petals shortly clawed, inserted on the disk. Fls. 7 or 7 1/2

lines broad. Petals 3 lines long. See p. 98.

No. 10,190. Senecio clarkianus Gray Edge of the woods on border of swamp. Rays 10, 6, 5, 7, 8.

No. 10,191. Oxypolis occidentalis ~~(Raf.)~~ C. + R. This umbellifer grew in the swamp.

No. 10,192. Hypericum anagalloides C. + S. Fls. 4 lines broad. Often matting closely moist flat in areas 50 to 100 ft. across!! A fine soft carpet!

No. 10,193. Lilium parvum Kell. Petals oblong, obtuse, the tips red-orange, at the middle with the yellow field spotted with brown dots. Tips of segments closely recoiled or better recurved. Border of woods on edge marsh.

No. 10,194. Geranium richardsonii F. & T. Pets. white, the clams

Frenchman Mdw., Dorrington, 4700 ft.

Lavry. Border of marsh, in edge of woods.

No. 10,195. Castilleia miniata Dougl.

This appears to be the same as 10,179 save that its flowers are red. With 10,179.

No. 10,196. Habenaria ~~unalaschensis~~ dilatata var. leucostachys

Swamp border

No. 10,197. Epilobium angustifolium L. Fls. (pink - mauve -)

Dorrington.

— Navarretia divaricata (Torr.) Greene. Dorrington. See no. 21,105.

No. 10,198. Rhododendron occidentale Gray. Forming dense thickets on the borders of the marsh and extending 50 yds into the woods.

No. 10,199. Ribes roezlii Regel.

Teratology. Saxifraga

Petals 8! Stamens 5! Styles & pistils 3! Sepals 8! Spm. no. 10,189.

Dorrington, Calaveras Co., 17 Aug. '23.

No. 10,200. Mimulus moschatus Dougl. Herbage very clammy! Moist shady swales.

No. 10,201. Sagina saginoides (L.) Karst. var. hesperia Fern. This caryophyll grew in a shady forest on rotting logs.

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cont. from p. 95] flower. Lilium parvum was not infrequent in the edge of the woods (no. 10,193) and Senecio (no. 10,190). Also Saxifraga (no. 10,189) was in fine condition and rather common, while two color forms of Castilleia (nos. 10,179 and 10,195) were most beautiful in this border of woods to the swamp or mdw.

No. 10,202. Arctostaphylos manzanita Parry. This is abundant or at least common on Bear Mts.* south of Harmon Peak. Aug. 17.

* foothills sw. of Angels Camp.

Berkeley, Aug. 30, 1923.

– Mrs. A. L. Grant is here on her way to Cornell from S. Cal. She visited Santa Cruz Island. Says Comarostaphylis polifolia is as common as many a chaparral species, coloring the slopes with its berries. Woodwardia radicans, she found 9 ft. h. She says Pinus radiata var. binata has persistent cones and always 2 leaves! Does not look at all like the Monterey Pine.

– Aug. 30, 1923.

– Lemmon, J. G. There appears to have been a "Lemmon Ranch" in San Luis Obispo Co., at Cholame. Label of Monardella breweri Gray in Gray Herb. Dated June, 1887.

– Cleveland, D. was at Julian collecting 15 July 1875 and at San Felipe in 1881. See labels of Monardella macrantha in Gray Herb.

Calaveras Co.

No. 10,203. Pinus sabiniana Dougl. near Avery sta. Aug. 17.

No. 10,204. Mimulus – Minetanthe pilosa Greene. Kentucky House, South Fork Calaveras River, Aug. 4.

No. 10,205. Hieracium Frenchman Mdw., Darrington, Calaveras Co., Aug. 17.

– Cont. from bottom p. 115 – Suisun Marshes trip. The marshes are quite full of water birds. It is a quiet hazy rather warm autumn day and the bird life is not active but we see it here and there. We stir up several of the Blued-Poke, and they rise in heavy flight. Far across the marshes in a pond, we see a flock of swan, their snowy bodies shining brightly in the sun.

Berkeley,

— M. S. Baker says: "Viola hallii comes as far s. as Mendocino Co. Viola palustris I found in the Bogs at Crescent City. It is always near the sea! Also in Humboldt Co. Viola cuneata is in Del Norte Co. and Viola primulaefolia. Viola langsdorffii I am very doubtful about. Del Norte back of Gasquet is full of Darlingtonia californica. I could not find any Canoe Cedar; but Mr. Wilder of Carlotta says it is more abundant at Regua than Incense Cedar. [I do not remember the latter at Regua.]. Brodiaea ramosa Greene is at head of Yeager Creek. It seems to me a hybrid between B. ida-maia and B. congesta. Both these species are found there. I have never seen B. ramosa except with B. idamaia. B. idamaia grows splendidly there. Tall fine plants with brilliant clusters of flowers."

SW Solano Co

Suisun, Sept. 27, 1923.

No. 10,206. Hemizonia virgata Gray. Light sandy soil.

No. 10,207. Xanthium. Creek bed

No. 10,208. Ambrosia psilostachya DC. Light sandy soil.

No. 10,209. Hemizonia (~~Centromadia~~ pungens (H. & A.) T. & G.)

Suisun Hills, Napa Co.

Berkeley Hills, n. of Cerrito Creek Sept. 30, 1923.

No. 10,210. Senecio hydrophilous Nutt. In a hill swamp or springy spot at Anson Blake's place.

Leaves only. Discarded, LRH 1965

Antioch, Oct. 4, 1923

Contra Costa Co.

No. 10,211. Boston californicus Mull. Arg. stamens 14, 12, 13, 12. Disk with 5 glandular yellowish lobes, i.e. of ♂ fl.

No. 10,212. Heinzomia ~~fasciculata T & G~~ Kelloggii Greene Rays 5; bracts of the disk 5, united in a circle and enclosing the 5 disk fls. Ligules 2½ lines long. Ray achenes roughened, with a marked beak.

See p. 109. Heterotheca grandiflora Nutt. 3 to 5 ft. high! It also occurs on Brannan Isl. 6 ft. h! Rays 30, 31, 35, 30. No. 10,226

No. 10,212 a. Salsola kali L. var. tenuifolia G. F. W. Mey. Frequent in sandy orchards near Antioch.

No. 10,213. Xanthium strumarium Sherman Isl. Ferry, Antioch shore. Bothers mostly 4.

No. 10,213 a. Medicago hispida Gaertn.

Sherman Isl., Oct. 4, 1923

San Joaquin Co.

No. 10,214. Cyperus Forming very rank and heavy stools, and very abundant. Often 3 ft. h.

No. 10,215. Verbena hastata L. Cor. deep blue, 2¼ lines long; a ring of hairs at throat. Stamens 4, inserted high on tube. Tube slightly hairy below stamens. Cont. p. 107.

No. 10,216. Mentha arvensis L. var. canadensis (L.) = var. villosa See p. 108. Stems 4 ft. long. Cont. p. 107.

No. 10,217. Equisetum hyemale L. var. californicum Milde. This also occurs on Andrus Isl. It forms pure and extensive stands on the inner banks of the levees and down into the orchards where it is plainly an orchard pest or weed. It continues, with interruptions for miles N. of Isleton.

No. 10,218. Rosa californica C. & S. Forming rank thickets in the river bottoms; 6 ft. high. - Brannan Isl.

Brannan Isl., Sacramento Co.

No. 10,219. Lathyrus Jepsonii Greene.
Stems as much as 8 ft. long, climbing over bushes and other plants. Banner light purple, veined in middle; keel and banner whitish. Upper calyx-teeth very short, lower lanceolate. [Cont. p. 107 & 108.]

No. 10,220. Brassica adpressa Boiss. = B. ~~geniculata (Desf.) J. Ball~~

No. 10,221. Lippia nodiflora Mich. var rosea (D. Don) Moldenke
Stems perfectly, i.e. closely prostrate, rooting at every joint. Upper cor. lip short, 2-lobed, middle lobe lower lip transversely elliptic, larger than the lateral lobes. Calyx with 2 lateral lobes, there hairy in a line or band at middle. Cont. p. 108.

No. 10,222. Helianthus californicus DC.
Stems always in clusters but absolutely simple from the ground up to the panicle, 6 to 16 ft. (!) high. Isleton, Andrus Isl.
Rays 15, 18, 14, 17, — 11 to 15 lines long. Pappus scales 2! dish gray; no small scales.

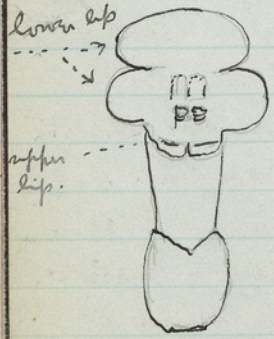
No. 10,223. Epilobium paniculatum Nutt. Fls. rose-pink, 6 lines broad. Seeds warty or roughened. Brannan Isl. Style with obliquely truncate single stigma. Petals cleft to middle.
— [Cont. no. 10,219. as long as tube. Leaves linear-lanceolate, 1 to 1½ in. long. Stamens 9 + 1. Style hairy at lower side. Wings with long auricular lobes.

No. 10,224. Senecio douglasii DC.
Rays 8, 9, 7, 8, 10, 9. Rounded bushes 3 to 5 ft. h. Achenes 2 3/4 lines long. — Antioch.
— Cont. no. 10,215. Corolla with 5 subequal lobes, but obviously 2-lipped as one looks at it attentively. It may be said to be slightly irregular.
— Cont. no. 10,216. Calyx teeth equal, calyx hairy outside. Cor. hairy outside, the throat slightly hairy inside; Upper lip cleft, lower parted into 3 oblong

Sherman Isl. Sacramento Co.

Lobes, Stamens 4, exserted. Style glab.

-Cont. from p. 106. no. 10, 221. Corolla pink. Stamens 2, very short, on lower side of throat. Corolla 1 line broad.



– Cont. from p. 105, no. 10, 216. Corolla whitish or a little lilac-tinged. See ~~also~~ p. 107.

No. 10, 225. Oenothera ~~jepsonii Greene~~ hookeri T. & G. Sherman Isl.

-Cont. no. 10, 215. Corolla 1 1/2 lines long.

– Cont. no. 10, 219, slightly longer than tube.

No. 10, 226. Heterotheca grandiflora Nutt. Antioch. Common in sandy soil. See p. 104.

– This trip made from Berkeley into the islands of the Lower Sacramento River in one day, leaving Berkeley at 6^{00} a.m. and going by way of Willow Pass to the Sherman Island ferry beyond Antioch. Ferry fare $1.05 each way. On the dry summer-fallowed fields near Antioch Eremocarpus setigerus is abundant, often monopolizing the fields to the exclusion of anything else, for miles. It is a native species which likes broken ground and is enabled to adapt itself to the changed conditions brought about by man's cultivating habits.

Drove from Sherman Isl. to Brannan Isl., crossing by ferry, 50c.

no charge on return, to Andrus Isl. I was much struck by the difficulty of getting wished-for plants which were abundant many years ago. I saw no Ammania, no Psoralea macrostachya, very scanty Oenothera Jepsonii, no Bidens, no Elliptica; no Hibiscus and so on.

My artist, Miss Saunders, went along and drew several things on the spot.

Suisun Marshes, Oct. 10.

Cont. from bottom p. 112. After finishing the marshes we drove north into Suisun Valley, then to Wooden Valley, then by the Berryessa road into Napa over the Napa Range. Near Napa we saw by the roadside a Pinus radiata tree filled with persistent cones! Apparently it had never dropped cones

Cont. p. 115.

No. 10, 227. Xanthium spinosum Goodyear sls.

No. 10, 228. Aster exilis Ell.

Leaves to 5 in. long, 3 lines wide. The flowers (heads) were not open when we arrived in the marshes early in the morning. The rays expanded at 10 o'clock. Common in colonies.

No. 10, 229. Aster chilensis Nees. var. lentus Jepson. A. has many fls. at time. Prob. not of even var. value.

No. 10, 230. Grindelia cuneifolia Nutt. var. paludosa Jepson. I doubt that this has even varietal value. This season is a very dry and poor season in the marshes and purely ecologic varieties tend to show up their real status. Leaves subauriculate – clasping.

Suisun Marshes, 10 Oct. '23.

No. 10.231. Lathyrus Jepsonii Greene.

No. 10.232. Beta vulgaris
3 to 4 ft. h.

No. 10, 233. Iva axillaris Pursh.
Achenes not flattened in this material, or scarcely, usually with a ridge on one side.

No. 10, 234. Rosa californica C.&S.
Suisun Valley.

No. 10, 235. Sida hederacea Torr
Suisun Marshes.

– Drove today from Berkeley to a point beyond Goodyear sta., where I parked the machine alongside the railway track and we walked into the marshes as far as Teal sta. We passed first Cygnus sta. (at Dawbridge). From Cygnus to Teal may be said to be the heart of the Suisun Marshes. Mr. H.P. Mason and Miss Joyce Saunders were along. 1/10-
Cont. p.

– Professor Gilmore [John W.] of the Division of Agronomy spoke on fibers before the Botany Seminar Oct. 15.

Fibers have quality as follows:

Strength.
Durability.
Cohesion
Pliability
Elasticity
Length
Fineness
Uniformity
Porosity
Luster.

He classified fibers into bast fibers, such as flax; superficial fibers such as cotton; and structural fibers such as the following:

Coir (Cocos nucifera)
Sisal (Agave spp.)
Manila (Boehmeria spp).
New Zealand (Phormium tenax).
— Cont. p. 116.

F. Weis

whose signature here appears, called today. He is Professor of Plant-Physiology in the Royal Agricultural College, Copenhagen, Denmark. He said: "We are making plantations of American trees. Pinus contorta on our poor lands does well. It takes on an erect habit and does better than Pinus murrayana. We plant also Picea sitchensis which does excellently and makes a fine tree, as does also Pseudotsuga taxifolia. Of native European conifers we have none except Taxus and Juniperus. Picea excelsa we cultivate but it becomes sickly through the attacks of the fungus Pinus sylvestris we cultivate but it is not native to Denmark. We have large beech forests, Fagus sylvaticus. The beech is migrating from west to east in northern Europe, the Picea excelsa from east to west."

Cont. from p. 110. This tree was a remarkable sight. We drove into Napa along the east side highway and the tree was about a mile from the city. Nearly all the cones, since the tree, bearing, persisted apparently. I think I have never before seen such a case. (See also p. 100.) At least where the cones were so long persistent, I recall no case at Monterey.

Cont. p. 101.

Cont. from p. 113.

Yucca spp. (Y. whipplei produces a very long white fiber).

Nolina

(? Mannhuis) Furcroea.

No. 10,235a. Cornus glabrata Bth. (Napa Co.)

Wooden Valley. Oct. 10, 1923.

– Botanical Expl. in Cal. cf. "Official Explorations for Pacific Railroads," by J. L. Albright (Univ. Cal. Publ. Hist. 11: 1-187, – 1921)

San Francisco, Oct. 18, 1923.

Drove to the sandhills s. of the park and on to Lake Merced; thence s. to a wet tiny vale that had been cultivated in mid-summer and was now rank with a spring-like vegetation. This locality is west of Colma, in San Mateo Co., and near the ocean. See no. 10,254 et seq. south of Lake Merced,

No. 10,236. Roubieva multifida Moq. = Chenopodium multifidum.

Sand hills near beach.

No. 10,237. Cakile edentula Hook var. californica Beach.

No. 10,238. Franseria chamissonis Less. ssp. chamissonis Beach.

No. 10,239. Alyssum maritimum Lam. = Lobularia Beach.

No. 10,240. Juncus

Moist flat. Sand-dunes.

No. 10,241. Tanacetum camphoratum

Sand-dunes

No. 10,241a. Salix

I suppose this is S. franciscana Seeman. It has much thicker leaves than the interior form; but it grows very near the sea (within two or three hundred yards). It forms marked colonies a few rods square and 6 to 10 ft. high.

No. 10,242. Lathyrus littoralis (Nutt.) Endl. → Sand-dunes near sea

Leaflets sometimes as large as stipules. On well-grown stems stipules are 2 to 3 times as large as leaflets.

No. 10,243. Abronia umbellata Lam. Sand-dunes.

No. 10,244. Oenothera Viennis. No. = O. hookeri T. + G. Stems, at beginning, with a great flat rosette at ground. Lake Merced.

No. 10,245. Solidago Lake Merced.

No. 10,246. ~~Erigeron~~ Conyza canadensis (L.) ~~Conq.~~ Cronq. Cont. p. 122. Lake Merced.

No. 10,247. Scrophularia californica C. + S. Lake Merced.

No. 10,248. Polygonum punctatum Ell. Shores, Lake Merced.

No. 10,249. Azolla filiculoides Lam. Muddy shores, Lake Merced

No. 10,250. Polygonum persicaria L. (San Mateo Co.) Colma, hills west of, toward ocean, in swale. Same as 10,248.

No. 10,251. Eriogonum latifolium Small Lake Merced.

No. 10,252. Aster Lake Merced.

No. 10,253. Polygonum coccineum Muhl. Cont. p. 121. Lake Merced.

No. 10,254. Senecio vulgaris L. Hills w. of Colma, near ocean, in a moist swale. San Mateo Co. See p. 116.

No. 10,255. Cotula coronopifolia L. With 10,254. Cont. p. 122

No. 10,256. Solanum Douglasii With 10,254.

No. 10,257. Spergula arvensis L. There were fine patches of this in a moist cultivated swale, fresh and thrifty like spring. With 10,254.

No. 10,258. Chenopodium With 10,254.

No. 10,259. Potentilla ~~Tanserina L.~~ egedei Wormsk var. grandis (Rydb.) J.T. Howell With 10,254 Stamens 20, 22. Filaments stout, seated on a yellowish disk lining the calyx-tube. A

narrow but dense band of hairs lie between these stamens and the receptacle bearing the pistils.

No. 10. 260. Lilaea subulata H.B.K.
Moist-ditch.

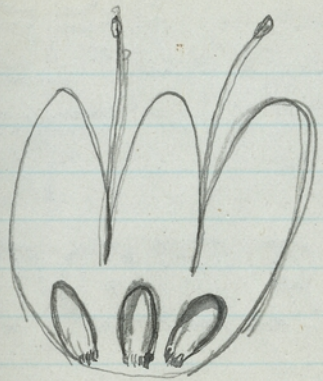
No. 10, 261. Lemna

No. 10, 262. Castilleia
Lake Merced.

No. 10, 263. Eriophyllum staechadifolium Lag. Distinctly a woody bush 18 in. high where it is most well-grown. Lake Merced. Cont. p. 122

No. 10, 264. Grindelia
Hill-tops near sea.
Lake Merced.

No. 10, 265. Oenothera cheiranthifolia Hornem. Sand-dunes on beach. Plants always with a central rosette of leaves; beneath this rosette, from the main axis and lower axils the prostrate or procumbent stems arise.



— Cont. from p. 119

No. 10, 253. The calyx is 5-cleft with a distinctly cup-shaped base. In this base are seated five fleshy, flattish but thick, scales, adnate to the calyx but free at tip! The stamens are 5, with their filaments inserted in the sinuses of the calyx. Calyx pink! The ↑bright standing features are the synsepalous base to the calyx and the fleshy scales! Calyx 2½ lines long. Stamens exserted. Style 2-cleft. All flower parts glabrous.

— Cont. 10, 248. Stamens 5. Calyx 5-cleft perhaps not any more

deeply than in no. 10, 253. Calyx whitish, pink in bud, 1½ lines long.

– Cont. no. 10, 246. Rays entire or 2-toothed, even in the same head.

– Cont. no. 10, 263. Scales to the pappus silvery, broad, unequal, 7, 8, 9, 9.

– Cont. no. 10, 255. Pistillate fls. pediceled. Perfect fls. nearly sessile in center of head, shortly pediceled on margin. All the fls. with corollas have pedicels however, as best shown by looking at a receptacle from which the disk-fls. are deciduous.

No. 10, 266. Erigeron glaucus Ker.
Flowers only – discarded LRH in 1966

– Soune, C.F. Concerning his care and fine labeling of his herb. sheets, see Platyspermum scapigerum, being a sheet from his herb.

Union Isl., Oct. 22, 1923.

No. 10, 267. Picris echioides L.
This Ox-tongue is abundant on the drainage ways or canals in the islands.

No. 10, 268. Bidens chrysanthemoides L. Growing in water where most thrifty. In such places the stems 8 to 10 ft. long! See p. 131.

No. 10, 269. Nicotiana glauca Graham. 14 ft. h.

No. 10, 270. Echinochloa crus-galli (L.) Beauv. (det. Beecher Crampton, 1922)
This grass forms the main part of the vegetation in the broad sump or drainway way next the levee.

No. 10, 271. Solanum nigrum L.

No. 10, 272. Plantago ovata
Styles on whole spike appearing first, followed by authers. The styles appear before the corollas expand, the authers with the corollas.

No. 10,273. Aster exilis Ell.
No. 10,274. Euphorbia serpyllifolia Pers.
Glands with white 2 or 3-toothed crests. Prostrate.
No. 10,275. Polygonum ~~lapathifolium~~ punctatum Ell. Ls.
Stamens 6. Style 3-parted.
Achene triangular. Style, it were better to say, 3-cleft, the undivided portion as long. This does not answer very well to my description in Fl. W. Mid. Cal. 139 ed. 2. Calyx slightly black-dotted. Leaf margins not "scabrous pubescent."
No. 10,276 Setaria glauca (L.) P. Beaure.
(Det. Beecher Crampton, Mar. '72)
This grass grew with 10,277.
No. 10,277. Asclepias mexicana Cav. = A. fascicularis Dcne.
No. 10,278. Quercus lobata Neé.
New foliage shoots developed this autumn which are quite different from the leaves of

fertile branchlets. They are often quite long — these sterile shoots — and may become the pendulous branchlets of another season. Cont. p. 134.
No. 10,279. Bidens frondosa L.
River banks.
— We, Miss Joyce Saunder, the botanical artist and myself, drive from Berkeley, starting 6 am, going by way of Walnut Creek to Dublin village, thence via Santa Rita to Livermore and over Altamont Pass to Tracy. Here we are joined by Mrs. A. R. Arnold and go northerly to Union Island, botanizing chiefly in one of the broad "canals" between levees. Here we collect nos. 10,267 to 10,277. We drive back south, cross the Old River bridge, and lunch under a fine grove of Quercus lobata. Cont. p. 135

San Joaquin City, San Joaquin River
San Joaquin Co.

No. 10,280. Crypsis aculeata (L.) Aiton
(Det. Beecher Crampton, 3/'27)

This grass formed perfectly prostrate little mats in the moist river bottom.

No. 10,281. Lippia nodiflora Van Michx.
Reptons (Hitchk.) Moldenke
Perfectly prostrate, forming closely woven carpets on the river bottoms.

No. 10,282. Mollugo verticillata L.

Sepals 5, whitish. Ovary strongly 3-lobed, the 3 stamens lie in the furrows between the lobes, while the anthers closely appressed the 3 stigmas. Styles 3, but very short! This slender prostrate plant grows in the river bottoms; it resembles closely in habit and general appearance ↑some Spergularia species when prostrate. Seeds without strophiole. Capsule 3-celled, 3-valved, loculicidal. Seeds without strophiole. See p. 130.

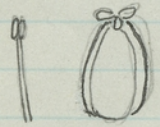
No. 10,283. Cypselea humifusa Turp.

Calyx herbaceous, one margin glen scarious! Calyx glabrous. Stamens 4, 5, (3, 3. 3.) Filaments of stamens filiform, red. Ovary globose-ovate, red or brown. Calyx 5-cleft, the united portion very short. Style 2-parted! Stamens perigynous (on calyx)! Capsule circumscissile near base! Placentas basal! Capsule 1-celled. Stipules scarious, filiform-laciniate. There is no calyx-"tube" properly speaking I should say stigmas 2, rather than style 2-cleft. Calyx-lobes not specially unequal. Lid of capsule showing remnant of partition in top. Plants prostrate, forming closely woven mats; when lifted they curl involutely so to speak, the stems curling downward.

San Joaquin City, San Joaquin River
San Joaquin Co.

No. 10,284. Glinus lotoides Loefl.

Ovary 3-lobed, the 3 stamens lying in the grooves of the lobes, i.e. between the lobes, the anthers approximate around the stigmas. Sepals 5, tomentulose. Capsule loculicidal, the 3 valves separating from the central placenta. Stigmas 3, radiate over the lobes. I find fls. with 5 stamens also. Perhaps the stamens are normally 5.

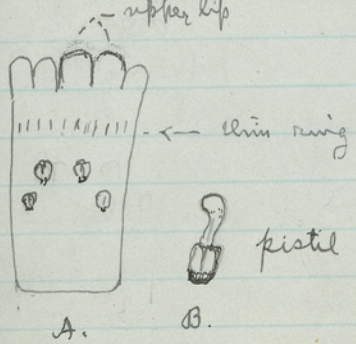


Stamen. Pistil.

Stamens hypogynous!

Oct. 22, 1923.

No. 10,285. Verbena ~~bracteosa~~ bracteata Lag. & Rodr. Michx.



"A." & "B" are same scale. The stigma is about on level with lowest anthers Cor. lobes subequal; not as unequal as indicated or scarcely.

No. 10,286. Amaranthus
Leaves white-veined beneath; bracts scarious margined. Prostrate. River bottoms.

No. 10,287. Eryngium
Stems procumbent or prostrate, divergent from the central stem. River bottoms.

-Continued Grindelia, no. 10,297. See p. 133.
Rays 23. 27,
Rays short; the ligulae 2 1/2 lines long. Pappus - bristles 2, at the lateral angles.

No. 10,288. Eragrostis hypnoides B.S.P.
This grass is prostrate in the river bottoms.

- Cont. from bottom of p. 123. From Tracy we drove southeast to the old site of San Joaquin City. The steamers once ran to this point on the San Joaquin River. We botanize in a river bottom about 1/4 mile from the bridge over the river. See p. 131

- Cont. from p. 126. Mollugo, no. 10,282
Stamens hypogynous! Heads 10-11 lines broad. Involucre low or depressed urn-shaped.

Cont. from p. 125. Bidens frondosa L., no. 10,279.
Rays minute, the ligules completely hidden by the broad inner bracts of the involucre. In some heads the rays appear to be obsolete.

- Cont. from middle p. 130. We collect at this point: nos. 10,280 to 10,288. We then drive on south to the Pike Ranch, formerly Okeley Ranch, a great ranch bordering the San Joaquin River a few miles north of Grayson. See p. 133.

- Cont. from p. 123. Bidens, no. 10,267. (6)
Rays 8, 8, 8, 8, the ligules 11 lines long. Bracts of inner involucre with somewhat spreading ovate thin tips, about equaling disk, but not a great deal. Outer involucre distinctly surpassing disk. Cypsela to achenes mostly 3, rarely 4. (Ligules of plants in the slough apparently 1 to 1 1/2 in. long.) Heads nodding in fruit.

No. 10,289. Echinodorus cordifolius Griseb. River bottoms

No. 10,290. Jussrena = J. repens californica Jepson. This land form is quite different from the water form. It has smaller leaves and shorter internodes. The two grow near together

No. 10,291. Fimbristylis Vahlii (Lam.) Link This tiny sedge grew on low moist sand-flats bordering the river.

No. 10,292. Cypselea humifusa Turp. with 10,291. See also 10,283.

No. 10,293. Gnaphalium palustre Nott with 10,291.

No. 10,294. Cyperus This grass grew with 10,291.

No. 10,295. Cyperus This sedge grew with no. 10,291.

No. 10,296. Lippia nodiflora Michx. Spreading or decumbent but not prostrate; not forming a mat.

No. 10,297. Grindelia This forms dense colonies along the banks on the margins of the sloughs. It grows tall (4 to 7 ft. high) and slender, branching only at the top. See p. 130.

No. 10,298. Spergularia Alameda Co. Altamont Pass, e. side.

No. 10,299. ~~Hemizonia~~ Holocarpha virgata ~~T. v.g.~~ (Gray) Keck Altamont Pass, e. side

— Cont from middle p. 131. Here, we drive in, east, to the river bottoms and collect nos. 10,289 to 10,297. We find the bottoms inside the levees rather monotonous; but climbing over the levee and going down on the sandy flats bordering the river there are several interesting species. A sandy flat is

three-quarters encircled by a dense fringe of trees, mainly various species of willow. They are tall, well grown and thrifty. They are at the maturity of their foliage growth and present a highly attractive and satisfying picture. The various portions of the curve are quite different, so that we fall into argument as to the superiority of one portion over another.

It is now after sunset, the mosquitoes are not neglecting their opportunity, and we drive back to Tracy where we are received by Mr. Arndt at his home, eat at his hospitable board, and receive five boxes of beautiful grapes to take back to Berkeley.

– cont. p. 125. This grove is a delightful ↑from little spot. A bit of animation is added to the scene by a flock of crows which frequent the trees and are now returning from a foraging expedition. In the light breeze above they fall and tip under the wind as if headway were sometimes difficult. Whereas, a hawk comes by, his swift flight changing into a glide with apparent ease, apparent absence of effort.

– Cont. from p. 125. No. 10, 278. One acorn has a peculiar embryo. It is a case of teratology. The cotyledons do not lie in two halves as usual longitudinally, but at right angles to usual position, one cot. filling basal part of nut, the other the apical or pointed part. They are joined irregularly, [cont. p. 136

Berkeley, Oct. 25, 1923.

Chas. L. Camp
Dept. Geology –
Local 162
or Mus. Vert. Zool.

has just been in with a translation of Cremeno's voyage, a Spanish navigator who touched Pt. Reyes 16 years after Drake. The food of the natives is referred to: hazel nuts, ~~sesamum~~ seed like, out of which bread was made, and a thistle, probably Cirsium edule. – Oct. 25, 1923.

[Cont. from p. 135] being somewhat dovetailed into each other, the plumule and caudicle lying on one side between them of course.

No. 10.300. Salix ~~flavescens Nutt.~~ scouleriana Barr.

Tree near Mill Valley in cañon bottom, 3 ft. 1½ in. circ. at 4 ft. I estimate it as 55 ft. h. The trunk was about 20 ft. in height, straight, looking more like a Tan Oak trunk than a willow trunk. The leaves of my specimen are from a crown sprout. Otherwise no foliage was in reach. The foliage in the crown seemed small and in shape like the bush of our Berkeley Hills.

No. 10.301. ~~Pellaea densa~~ Cheilanthes siliquosa Maxon (DET. TYRON, JR. 1958)

Rocky slope.

No. 10.302. Rhododendron occidentale. Along streams in cañon bottoms. Very shady. Long internodes! Small trees 15 to 26 ft. high! Internodes on main upright shoots or branches in top of tree 9 to 18 in. long. See p. 138

No. 10,303. Rhododendron occidentale. Exposed rocky slope on a seepage slide. Leaves small, ascending or erect; flowers white, pinkish-veined outside, the tube often markedly pinkish outside. See 10,302 cont. Rattlesnake Camp.

No. 10,304. Parnassia californica Greene. Springs at Bootjack Camp.

No. 10,305. Calycadenia multiglandulosa ssp. cephalotes Gray. Dry open slope at Bootjack Camp.

No. 10,306. Pseudotsuga ~~taxifolia~~ menziesii (Mirb.) Franco Britt. Rattlesnake Camp.

- Cont. no. 10,302. Leaves in spreading rosettes. There is a very great contrast between this and no. 10,303, in habit and foliage.

- Berberis pinnata. Dry slopes e. of Muir Woods.

Marin Co

No. 10,307. Juncus xiphioides E. Mey. By water's edge, streamlet, Mill Valley.

- The finest botanizing, in most respects, on the south side the mountain is from near West Point, west along road to Bootjack Camp. A great deal of serpentine rock is exposed along this trail. Arctostaphylos montana grows along it; Cupressus sargentii, trees 20 to 40 ft. high and 1 to 1¼ ft. in diameter. One tree 48 ft. h! This trail must be very fine in the spring and summer. There are a good many springy spots along it or little meadowlets. One of the fine things here in this area is Lupinus eminens Greene. Its silvery coat is very remarkable and equaled by no other. Cont. p. 141

Berkeley

F. W. Peirson plants.

- Potentilla santolinoides Greene. Waterman Ridge, San Gabriel Mts., 16 June '21. Also Mt. Pinos.

- P. elata Greene. Wendling, Mendocino Co. No. 3747. 7 July '23.

- Cont. from p. 107, near bottom, no. 10, 216. In my spms. as I now examine the corollas appear glabrous or nearly so. The statement "Cor. hairy outside" — was it a slip? — Apr. 29, 1938.

- Phoradendron flavescens Nutt. Vacaville, Cal., Neat Tate's Ranch, on Aesculus californica Nutt. No. 10, 309a. Jan. 13, 1924. See p. 145.

Cont. from p. 139.-

Lupine that I know. Adenocaulon bicolor was noted in the lower woods. The panicles, dead, dry, all fruits gone, still towered aloft; the lower part of the stem bore the foliage leaves as usual, but these leaves are still functioning! still green and "carrying on". No. 10, 308. Quercus wislizenii A.DC. var. frutescens Engelm. Near West Point. Acorns.

- "Fairy Circles" and Plant Circles. In Death Valley, in the Funeral Range I observed certain plant circles, the explanation of which baffled me (cf. vol. 33, p. 115).

There now comes to me a letter from S. L. Gillan, describing grass circles at head of San Joaquin Valley. He sends a photo.

– Last night a meeting of five of the California Botanic Garden Committee, Webber, Hall, Babcock, Houghton, myself. Webber proposed that in order to raise funds we capitalize the popularity of Burbank's name and start a great popular subscription. There followed a discussion of Burbank, of the real man, of his foibles and what he has actually accomplished. Webber made some interesting statements, one that Burbank is the best known man, the most widely known man in the United States today, known to a greater number of people. This is very nearly true, possibly quite true. Later on Webber expressed as his judgement that Burbank was not a truly scientific man and as a plant breeder had no real claims to greatness.

[This was about Nov. 25.]

– W.N. Harris, Manager State Exposition Building, Exposition Park, Los Angeles, California, Secretary Sixth District Agricultural Association, called today. He is to install a forestry exhibit at Los Angeles and wanted my advice. He said that he had talked with Clinton Miller (Regent U.C. by virtue of being President of the Alumni) and that Miller also advised him to come. Miller, he said, had met me on one of my expeditions in the Sierras – Circa Dec. 5th.

– Californian Botanists. There are in the Univ. Cal. library some bound vols. of botanical pamphlets, mostly rarities. Cf. also Botanical Biography under class number 442.

No. 10,307a. Poa annua L.
Berkeley; 28th Feb. 1924.

No. 10.307b. Avena fatua L.
Berkeley. Feb. 14, 1924.

No. 10, 308. Garrya elliptica Dougl. Lake Alpine. The pistillate shrubs, as noted about the lake, are all smaller than the staminate. (Lake Alpine)

No. 10, 309. Arctostaphylos glandulosa Eastw. var. virgata Jepson. Eastw. var. virgata Piper. This grew on top of the Bolinas Ridge on the margin of the wood where it joins the low chaparral extending down the west slope. This spot is just south of the point where the wagon road goes over the summit, — on a little rise. The stems go down into the ground without enlargement or basal swelling. It is single-stemmed and strictly erect. = Var virgata (Eastw.).

— One has from the Bolinas Ridge camp a very fine view westward — taking in Bolinas Bay, Inverness Ridge, Farallone Islands and the Pacific Ocean.

— As we came down into the Alpine Lake hollow a flock of sober-silvery-gray birds about the size of turtle doves were flying in the cañon, with a swift flight, suddenly changing direction with great precision like a flock of swallows. They settled in a Douglas Fir tree and their evolutions were at an end for us. On the Polreño Meadow Flats crows were calling and later we saw a very large number of them winging their way homeward over Lake Lagunitas

No. 10, 309a. See p. 140. Rhododendron.

Olema, Feb. 10, 1924.

No. 10, 310. Berberis aquifolium Pursh. Leaflets up to 13! 4 ft. h. On a sharp north rocky slope of a little cañon, east of Olema. In full bud, but fls. not yet opened!

No. 10, 310a. Oxalis oregana Nutt. with 10, 311.

Berkeley

= H. occidentalis Buckt.

No. 10,311. Hierochloë macrophylla Thurb. Paper mill Creek, amongst Redwoods. In fl. Feb. 10.

No 10,311a. Dentaria integrifolia var. californica Jepson. Papermill Creek, Feb. 10, 1924. = D. californica Nutt.

— W.W. Eggleston, U.S. Bureau of Plant Industry, called today. He said: "Alphonso Wood was a most excellent teacher. He kept Asa Gray on the jump getting out his school books. Wood was always a little ahead of Gray. Gray resented Wood's texts as an invasion of his field. Wood was a much greater man than is commonly supposed. I am engaged in making a memorial of him. It is planned to take a full volume of the Contributions from the U.S. National Herbarium. I have recently secured his journal from his daughter in Syria. She went to Syria to be with her

brother, a missionary. She married a Syrian physician. The brother is dead.

I have had difficulty in following Fremont's trips. The 1846 trip troubled me but there is a Senate document which throws a great deal of light on his movements in that year. Asa Gray's letters to John Torrey reveal the interesting fact that Fremont did not want a good scientific man along on his trips. He should have had Geyer. He utilized men who knew the country — such as Carson and Walker. Fremont's memoirs goes into politics and neglects his expeditions.

I once called on Greene and asked to see his type of Crataegus saligna. Why, I said, with quick appraisement, that's a good species! My em-

phasis offended Greene who retorted haughtily: "I never make anything but good species"! My emphasis was of course natural but inadvertent.

A lot of the men in Washington tend to follow Greene. He had great influence among them and being not very able they pattern after him. I do not consider Rose a good systematist. He is weak and has done his work in conjunction with others. Maxon also follows along in the same way.

Mrs. Brandegee was in Washington looking up Lupines. She never had the power to finish anything. She was also too rabid. Miss Eastwood flies off the handle, too, sometimes.

C.S. Sargent early developed the trick of getting people to do work for him for little or nothing. Asa Gray observed this and spoke of it: Sargent is a millionaire. The successful organization of the Arnold Arboretum is due a great deal to Faxon.

The Douglas rules are hard to work out. Douglas did not have the power to get down to work and produce his journal in London; so he was sent back to America. [He cared too much for action]. The Horticultural Society's publication of the journal results in a very different account. A Hudson Bay Co. man received letters from Douglas. They are published in the Royal Society of Canada, about 1862.

Cont. next p.

Berkeley, 25 Mar. 1924.

L. H. Henderson lost his entire botanical collection and library in a fire. He has never done anything since. He is now running an apple orchard in Idaho. in Botany

I think very highly of Marshall Howe. He has been made Assistant Director at the N. Y. Bot. Garden. He should have had the place when Murrill was appointed."
— So spake Eggleston. He is traveling on the poisonous plant investigations. — Mar. 25, '24

— Se-quo-yah. A portrait is in McKinney & Hall, History of the Indian Tribes of N. Am. vol. 1, p. 63-70 (1838).

— Cal. Botanical Explorers. Re. A.R. Wallace's visit to Cal; see Pamphlets on Cal. Botany, U.C. Library, vol. 1.

Vacaville, Feb. 1924.

No. 10,311 b. Centaurea calcitrapa L. Early leaf rosettes from the perennial root. Seizing light space and crowding out competition.

Guerneses, Feb. 10, 1924.

- Senecio nikanioides
- Vinca major
- The following are found at as low altitudes as 10 ft.:

Holodiscus discolor
Baccharis pilularis
Corylus rostrata
Dipla cus glutinosus Nutt.

Some are perhaps found lower than 10 ft. above mean tide level.

— Agave. Louis Luna the old-time keeper of a Mexican restaurant in S.F., used to say: "Sh. Senor, drink mescal. It is the fine drink to make you drunk; but next morning you have no headache!" An interesting recommendation! No bad effects! The alcohol in it goes to one's head (flat) almost instantly!

– A party of us, from Berkeley and Stanford, are here with the idea of interesting some wealthy man in the south in the idea of founding a California Botanical Garden. Our group consists of D. H. Campbell of Stanford, E. D. Merrill, Dr A. D. Houghton, H. M. Hall, L. R. Abrams and myself. We call upon Henry E. Huntington at his magnificent estate. It was arranged that I was to make the speech – and I made it – but under somewhat difficult conditions. Mr. Huntington has already made his plans for the disposal of his wealth and only listened perfunctorily. Afterwards he took us around his very remarkable garden and also to see the paintings in his

mansion – the ones hung in his drawing and living rooms. He has large and fine examples of Reynolds, Raeburn, Gainsborough and others. Of course we pursued a long time before the "Blue Boy", but all the others were equally representative of the particular master. There is a Raeburn in the hall – a full length portrait of a gentleman with a singularly noble countenance.

After considerable negotiations we went to call on Mr. Edw. Doheney. This is just now the height of the oil scandal, the "black satchell" and all the rest of it. Mr. Doheney is gaurded like a middle-age baron and naturally sees no one at a time like this. We are left standing outside while gaurds, detectives and house-

hold servants consult. When we do get in we are received simply and cordially by Mr. Doheny. There is a barbaric splendor about the red plush of his parlors that is in amazing contrast to the refined though costly but quiet elegance of the Huntington mansion. Mr. Doheny himself seems a plain honest man, simple and unaffected. His dress is very plain. As a whole he is plain as an old shoe and puts on no airs in spite of his vast wealth. He took us around his great palm house himself. He knows palms, not scientifically, but knows their habits through cultivation. He has an arrangement by which he can precipitate a fine mist and "so make it rain", which the rainmakers are unable

to do in these drought years. He joked a bit about this.

We had a meeting of our group at the Hotel Huntington. There was also present D.M. Linnard, owner of this hotel and many others, and Dr. Willis Baer, Vice-President of the Southwest Bank, formerly President of Occidental College. We incidentally discussed the question as to whether Doheny bribed Secretary Fall or made him a gift. It seems certain that Doheny, says Baer, may give any one he likes $10,000 or $25,000 or $, [Cont. p. 201]

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of the Sierra Nevada,

– A lovely Pentstemon, P. davidsonii Greene was named for Geo. Davidson, of the U.S. Geol. Survey on this coast. He was a wonderfully profane man and tradition has it that his objurgations on Mrs. Curran, later Brandegee were something appalling to listen to. He collected some plants for Greene.

– Sniffle weed. Imperial Valley, acc. Bidwell. Perhaps Sida hederacea.

No. 10,312. Calochortus ~~lilacinus~~ uniflorus H+A. Bulbs deep-seating by sending down a fleshy cylinder. Under repeating of this movement, we have a string or "rosary" of corms. – Conn Valley. Moist valley flats. 300 ft.

No. 10,313. Linanthus dichotomus Bth. Dry hillslope. Conn Valley 300 ft.

No. 10,314. Alchemilla occidentalis Nutt. ~~arvensis Scop.~~ Dry hillslope. Conn Valley, 300 ft.

No. 10,315. Linanthus bicolor Greene. Cor. white, with yellow throat. Conn Valley. 300 ft.

No. 10,316. Lathyrus vestitus ssp. puberulus Cor. pinkish or white.

No. 10,317. Lupinus ~~bicolor var. microphyllus (det. C.P.S.)~~. Howell Mt. L. micranthus Dougl. det E. Crum.

– Howell Mt., highest point, I estimate to be 3000 ft. Atlas Peak, NE. of Napa is 2662. I feel sure Howell Mt. is at least 350 feet higher. See p. 157.

Howell Mt. Napa Co.

No. 10,318. Ceanothus foliosus Parry. Diffuse, 3 to 4 ft. high. Flowers deep blue. Howell Mt., c. 2400 ft.

No. 10,319. Barbarea vulgaris Lo. Howell Mt. plateau; in pine forest. See below. c. 2400 ft.

No. 10,320. Viola quercetorum B+Cl. ~~purpurea Kell.~~ Under Yellow Pine (Pinus ponderosa Dougl.), Howell Mt. c. 2400 ft.

– Barbarea orthoceras var. dolichocarpa Fer. = no. 10,319. See above.

No. 10,321. Ceanothus Jepsonii Greene. Shrubs 4 to 6 ft. high. Howell Mt. Flowers blue. Odor a very grateful honey-musk odor. (Below Toland House on road to Sanitarium.) c. 1800 ft.

No. 10,322. Amsinckia ~~hellen Brand~~ Menziesii? 300 ft. Cont. p. 158. Napa Valley near mouth of Conn Creek, not far from St. Helena.

Cor. 4 1/2 lines long, the banner white with a purple tip. Wings white, 2/3 as long; keel as long as wings, white, faintly purple-tipped. See no. 10,323, p. 158.

Cont. no. 10,322. A spm. designated "a" is another sheet, showing a very leafy plant, in its earlier stage, the racemes less developed.

No. 10, 323. Astragalus clarianus Jeps. See bottom p. 157. Gravelly hill slope, Coon Valley. Essentially 2-celled, the partition reaching nearly to, but its edge not united with the placenta! [Pod] There was a little serpentine in the rock at this point.

No. 10,324. Medicago hispida Gaertn. Near mouth of Coon Creek, in Napa Valley near St. Helena.

No. 10. 325. Erodium botrys Bertol. Coon Creek, Napa Val.

No. 10,326. Floerkea douglasii Baill. Corolla yellow, except the white tips! Moist beds of broad ditches at Napa.

No. 10, 327. Amsinckia intermedia F&M. With 10, 322.

No. 10, 328. Plagiobothrys nothofulvus Gray. Coon Valley.

No. 10. 329. Thermopsis californica = T. macrophylla H.&A. Coon Valley.

No. 10. 330. Astragalus nigrescens Nutt. With 10, 323. = A. gambellianus Sheld.

– Cont. from p. 161. [After the bath] Mrs. Parish, further says, that in the face she looked so fresh, so fine-colored, as to be quite a delightful suprise! – Dec. 10, 1927.

No. 10.330a. Trifolium microdon H.&A. Berkeley, Apr. 21, 1924.

- Miss Harriet A. Walker, the filer in the Herbarium, has this month retired and gone to live in (University) an Old Ladies Home at Alden (formerly Temescal) in Oakland. (Nov. 1917) She came to us about 1906. She is now 83 years old. She must therefore have been about 62 when she entered the employ of the Herbarium. She was very slouchy in her dress and general appearance. I well remember Professor Geo. J. Peirce, here to give courses in Summer School, protesting that such a person should be in charge of the Herbarium. She was not, of course, in charge of the Herbarium, but since there has been for ten years only a nominal Curator as far as the flowering plant part is

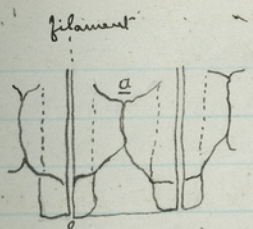
concerned, she seemed to be curator. Miss Walker became ill four or five years ago and was taken to the El Reposo Sanitarium on Chapel st. in Berkeley. There, the staff bathed her several times. She had an unconquerable aversion to a bath tub and threatened them roundly that if she were put in a bath tub again she would leave the place. Miss Walker thought of herself as very neat and was much incensed when on his occasions President Wheeler stopped her in the grounds, spoke kindly to her and called her Mrs. Brandegee, for Mrs. Brandegee was recognized by everyone as looking most slatternly. Mrs. Parish, has been to call upon Miss Walker at the Old Ladies Home and says, by strategy, the nurses there have gotten her into a bath tub. [Cont. p. 197]

No. 10,331. Muilla maritima Wats. Stamens set well off the receptacle on the base of the perianth segments, 1 or nearly 1 mm. from base of pistil to base of stamens. The outer perianth segments have a very distinct conical thickening at tip, which projects as (on back of segment) an obscure point on the face of the segment.

This grows on the gravelly slope of Mt. Davidson. I suspect there are differences between this form and that of the alkaline flats of the Sacramento Valley.

Collected again in bitter fl., Apr. 18.

No. 10, 332. Phacelia californica Cham. Scales attached to base of filament, thus making a pocket behind, the scale on its upper margin connivent with the scale of the adjacent pair,



dotted line represents attachment of scale to corolla. a, indicates connivence of scales of contiguous pairs. b, represents lower portion of scale bent in opposite direction to "a" and attached to base of filament.

Filaments loosely hairy at middle, exserted (almost twice as long as corolla). Style cleft 2/5 way down.

Collected again Apr. 18.

No. 10, 333. Lupinus variicolor Stend. Keel beautifully ciliate on upper half. Wings light purple. Banner orbicular, white or whitish, the lower margin or purplish, the outer back-purple. ↑ ledge

dotted.

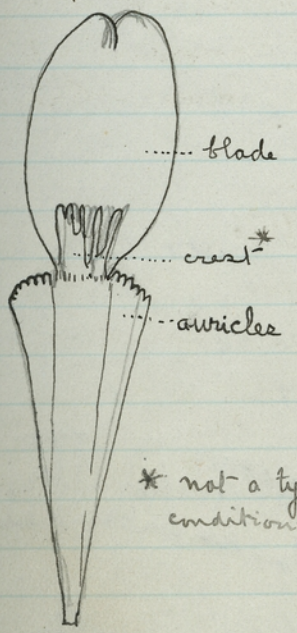
No. 10.334. Cerastium arvense L.
stamens 10; styles 5, distinct.
Petals white, narrow-obovate, cleft nearly 1/3 the way down. – Rocky slopes of Mt. Davidson.

No. 10,335. Wyethia
Disk: Crown of pappus with 1 or 2 lanceolate or subulate paleae. Ray achene with a crown but no paleae.

No. 10,336. Vicia americana Muhl.
Flowers 6 1/2 lines long, light purple. = var. linearis Wats.

No. 10,337. Silene verecunda Wats.
Petal limb narrow-elliptic, short-cleft at apex, bearing at base a conspicuous irregularly 4 or 5-cleft crown. Auricles conspicuous,

erosulate. Flowers pink.



The scales of the crest are commonly 2, quadratish – oblong and toothed at apex, regularly and minutely.

No. 10,337a. Lathyrus vestitus Nutt. ssp. bolanderi (Wats.) Hitchc.

No. 10,338. Baeria
Pappus – bristles 4.

No. 10,339. Castilleia douglasii Bth.
See notes with 4pm.

No. 10,340. Viola pedunculata T. & G. very abundant on the gravelly slopes.

No. 10,341. Spergula arvensis L. Abundant on the flats.

No. 10,342. Sidalcea malvaeflora ~~Moc. & Ses.~~ Gray

No. 10,343. Viola canina L. var. adunca Gray.

No. 10,344. Arabis blepharophylla H. & A. Rocky slopes.

No. 10,345. Senecio aronicoides DC. ~~integerrimus var. exaltatus (Nutt.) Greene~~

No. 10,346. Myosotis latifolia Poir. Woods

No. 10,347. Galium aparine L.

No. 10,348. Fragaria californica C. & S.

No. 10,349. Fragaria chilensis = F. chiloensis

No. 10,350. ~~Echinocystis~~ Marah fabacea (Nand.) Greene

No. 10,351. Senecio vulgaris L.

No. 10,352. Cotula australis

No. 10,353. Trifolium

No. 10,354. Lupinus micranthus Dougl.

— Mt. Davidson, just south of Twin Peaks, is a bit of wild land, or at least little affected by the encroachments of a great city all about it. The slopes were gay with great quantities of Viola pedunculata (no. 10,340), Castilleia (no. 10,399), and Viola canina var. adunca (no. 10,343). Arabis blepharophylla with its fine live purple color lent spots of animation. Silene verecunda was

very abundant, also Cerastium arvense L. Phacelia californica is also very abundant.

No. 10,355. Trifolium gracilentum T. + G. Calyx-lobes almost equaling corolla.

No. 10,356. Amsinckia intermedia F. & M. Grew very rankly in a dense thicket, 14 to 18 in. h. Cor. 1 to 1½ lines broad. Det. W. L. J.

No. 10,357. Amsinckia intermedia F. & M. Rank dense growth. Plants very much leafier than No. 10,356. Coarser stockier growth. Corollas 2½ lines broad.

No. 10,358. Myosotis sylvatica Hoffm. = M. latifolia

Nutlet round-ovate, not keeled or ridged on back, smooth with sharp angles at sides. Corolla blue, 3 lines broad.

No. 10,359. Geranium dissectum L.

No. 10,360. Lotus micranthus Benth.

No. 10,361. Lupinus bicolor Lindl.

No. 10,362. Oenothera ovata Nutt.

No. 10,363. Achillaea millefolium

No. 10,364. Poa unilatealis Scribn. This grass grew on the rocky slopes, nr. side.

Mt. Davidson, Apr. 18. 1924.

No. 10, 365. Plantago

No. 10, 366. Sagina apetala Ard.
Petals 1, 2, 3 or 4! Stamens 4, 5, 6.

— Professor Jean Massart of the University of Brussels, Exchange Professor of the Commission for Belgium Relief, called on me today. He had with him a number of "weeds" that he had picked up, of which he desired the names: Erodium moschatum, Avena fatua, etc. He has a great interest in weeds and remarked that weeds which in Belgium always keep to cultivated areas, thrive under the protection of cultivation and are not found in uncultivated areas; here in California he finds, to his surprise, must common on unbroken lands, such as Brassica cam-

Berkeley, Apr. 21, '24

pestris, Chenopodium album, etc. He asked if there were any native species which became weeds and I replied that Amsinckia intermedia and Hemizonia luzulaefolia as well as Asclepias mexicana were such.
— Apr. 21, 1924.

No. 10, 367. Psilocarphus tenellus Nutt. var. tenellus Mt. Davidson.

— History of Cal. Botanical Exploration. Cf. McKinney & Hall, Hist. of Indian Tribes N. Am. vol. 1, pp. 63-70 (1838).

— Brandegee, K. Note the slipshod character of his labels in Mantzelia — no dates and such locs. as "Pine Ridge".

— Species concept. Cf. note on Rafinesque, Jour. Wash. Acad. Sci. 15: 70 (1925).

No. 10, 368. Trifolium ciliatum Nutt. =T. ciliolatum Benth. Bth.
At Toll House. Open woods.

No. 10, 369. Euphorbia ~~leptocera~~ crenulata Englem. Engelm. Toll House. Open woods.

No. 10, 370. Lathyrus vestitus Nutt. ssp. puberulus Both apical and basal lobes, stipules subulate. Coroll dull lanceolate - white, the banner with a pink flush, especially in center, and dark veins (i.e. violet veined!). Banner turning sordid! Cont. p. 177.

No. 10, 371. Psoralea physodes Dougl. Keel purple-tipped; banner blue-purple tinged at apex. Cor. dull white. Toll House.

No. 10, 371a. ~~Montia~~ Claytonia spathulata Dougl. s.l. Toll House.

No. 10, 372. Ceanothus parryi Trel. Notice the white bractlets of the inflorescence. Leaves pale below with a cobwebby wool which is very fine. Fl-

owers a remarkable sky or bright blue of a very pure color. Toll House.

No. 10, 373. Arctostaphylos stomfordiana Parry. Berries singularly unsymmetrical! usually depressed, but also produced upwards. They have a ruddy color on one side, at this stage, which I have never noticed on any other species. The berries are now bright green like a quite green apple, the ruddy color, which is red-brown, flushing one side. Mt. St. Helena, at toll house (Lake Co)

No. 10, 374. Epilobium minutum Lindl. Toll House.

No. 10, 375. Fritillaria coccinea Greene Half-open chaparral hills, c. of side of Mt. St. Helena.

No. 10,376. Erythronium californicum Purdy. Flowers with a large yellow eye, the segments above white or flushed with pink! Inner segments at very base with two low rounded elevations which embrace the filament base or lower part of the filament rather. These low mounds or hillocks stand in a pair in center of claw, the sides being very obscurely developed as auricles.

No. 10,377. Ceanothus Jepsonii Greene. All the shrubs examined had flowers with 6 or 7 petals, one or the other number prevailing on a shrub. Canon slopes, thin chaparral, e. base Mt. St. Helena.

No. 10,378. Ceanothus incanus T. & G. Filaló at Mt. St. Helena (e. side, Lake Co.) Bushes 8 ft. high.

No. 10,379. Rhododendron occidentale Gray. Splendid clumps along stream in canon bottom. e. q Mt. St. Helena. Upper lip with a great yellow blotch. Corolla white, sometimes pinkish.

No. 10,380. Calochortus maweanus Leichtl.

1 sheet discarded - Frost-damaged III 1978

No. 10,381. Convolvulus villosus Gray. Rocky soil, open chaparral, e. q Mt. St. Helena.

No. 10,382. Cheilanthes siliquosa Maxon (det. Tryon jr. 1958) Pellaea densa Hook. This form grew under the edge of rocks in half-open chaparral.

No. 10,383. Amelanchier pallida ~~alnifolia Nutt.~~ Calyx-lobes rather closely reflexed! A most remarkable clump in cañon bottom: Stems very erect, 42 in. number, 2 to 4 in. diam. at base, 16 to 24 ft. high! It is a most remarkable stand set in a spot about 12 x 4 ft. at the ground. It is now in full flower. = var. siskiyouensis Jepson.

No. 10,384. Taraxacum officinale. Moist bottom of stream. Common in the locality. Heads depressed after flowering, becoming erect on expansion of head of achenes.

No. 10,385. Torreya californica Torr. Mt. St. Helena at Toll House.

No. 10,385a. Cornus nuttallii Aud. Mt. St. Helena.

No. 10,386. Berberis nervosa Pursh. Cañon, east slope Mt. St. Helena, below Toll House.

No. 10,387. Boschniakia strobilacea

– Lathyrus vestitus Nutt., = L. bolanderi Wats. var. violaceus Jepson. cont. from p. 172, no. 10,370. Keel turned abruptly upward at right angle from lower part, dull white, its tip faintly yellowish. Banner turning sordid in age. This appears no wise different from the plant of the Berkeley Hills or of the plains at Little Oak, Tw. Solano Co., California.

No. 10,388. Euphorbia leptocera Engelm. Mt. St. Helena.

Mt. St. Helena, Apr. 29, 1924.

No. 10,389. Trifolium microcephalum Ph. Mt. St. Helena, at Toll House. wooded bank

— Fragopogon porrifolius. Common near Oak Knoll, Napa Val.

[Quercus agrifolia Nee. Three trees cut down today on the margin of the old-time running track to make room (U.C.) for the new Life Science Building: one was about 143 years old, another 106, the third so hollow that an age count is impracticable. The cut surface is not favorable for a count, in the case of either of the trees counted, and the figures above are somewhat too high, rather than too low, it is most likely. — W.L.J., Oct. 30, 1928.]

No. 10,389a. Malva borealis Wallm. Berkeley, May 6, 1924. = M. nicaeensis All.

Botanical Collecting. [Technique of] Horse Packing, by C. J. Post (Outing Pub. Co. 1914. N.Y.)

Oakland Hills near Joaquin Miller Place. May, 3, 1924

No. 10,390. Microseris Douglasii Gray. Serpentine slopes.

No. 10,391. Eriophyllum confertiflorum Serpentine slope.

No. 10,392. Lotus glaber Benth. Serpentine slope. = L. scoparius Ott.

No. 10,393. Valerianella

No. 10,394. Euphorbia dictyosperma F. & M. = E. spathulata Lam.

No. 10,395. Convolvulus subacaulis Greene.

No. 10,396. Acaena trifida = A. pinnatifida R. & P. var. californica Jepson. = A. californica Bitter

No. 10,397. Arenaria douglasii Fenzl.

Alviso, Santa Clara Co. May 4, 1924.

No. 10,398. Geranium dissectum L. Cont. 181.

No. 10,399. Malva nicaeensis All.

Alviso, May 4, 1924.

– Tragopogon porrifolius
Abundant in the low places near Alviso. This was in low land approximating the true salt marshes near the bay. It was interesting that Rhus trivesiloba is here also, in spots that must be decidedly saline! How wonderfully tolerant it is! In blue adobe! In rich loam! In clays! In pure gravels! In rocky situations! In sandy spots.

– Cont. 10, 393. Spur longer than tube, descending one-fourth way down ovary only. Achene minutely hispidulose with scattered spreading hairs, very short looking glabrous in spot until one turns the hairs against achene so as to bring

the light. Hollow of achene quite glabrous.

– Cont. 10, 398. Corolla purple, achenes red- pilose. Beaks with gland-tipped hairs. short-

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Climate. – The driest winter season known in Cal. history has come to a close. For March the deficit in rainfall was 5.5 per cent (of this 60 % fell in first 3 days); deficit for April is 8.5 %, the total precipitation falling in the first 3 days. The total deficit for the season to May 1 is 5.3 %. These figures are for Berkeley. – May 1, 1924.

– No. 10, 399 a. Castilleia

Berkeley, Joyce M. Saunders. drawing by
Near Hamilton Gulch.

Vacaville, May 8, 1924

No. 10,400. Lathyrus Jepsonii ssp. californicus
Herbage very glaucous!!! but not white-glaucous, and yet distinctly glaucous. Corolla white, banner pink-veined, in center, a little pink flushed shortly after opening, all the petals sordid in age. Jewett Ranch, side of lane.

No. 10,401. Wyethia angustifolia (DC.) Nutt.
Bracts of the involucre a bit purplish at base. With 10,400.

No. 10,402. Pogogyne douglasii Bth. Bottoms former winter pools near Wolfskill. Solano Co.

No. 10,403. Trifolium bifidum Gray var. decipiens Greene. With 10,402.

No. 10,404. Gilia leucocephala =Navarretia
With 10,402.

No. 10,405. Allocarya stipitata Greene var. micrantha McBr.

Wolfskill, May 8, 1924
With no. 10,402.

Primitive vegetation of the plains of the Sacramento Valley.

- Lathyrus californicus, abundant on sandy "ridges". Likewise Wyethia (no. 10,401) formed large colonies. Trifolium olivaceum Greene made entire fields of hay! in early days.
- The vegetation of the low spots is partly indicated in nos. 10,402 to 10,406.

No. 10,406. Psilocarphus brevissima Nutt.
With 10,402.

No. 10,407. Evax canescens

Heads closely crowded in such a way as to make a sort of disk, which is roundish and almost flat. The heads sit rather closely together, so as to make a sort of pavement (say an ornamented or tessalated floor); surrounding this capitate inflorescence are a whorl of many leaves.

"Fertile" bracts in vertical rows under the sterile set of 5, five in a row. Fertile bracts are different in shape and appearance from the sterile ones; all have an ovary in the axil except the lowest which appears to be empty.

The fertile bracts are distinctly bluntish at apex or even a little truncatish! In E. sparsiflora they are acutish with a distinct but short cusp! On

account of colouration it is obvious to the eye under a lens.

The sterile bracts form a central disk which bears 5 flowers. These do not form a "cup," as in E. sparsiflora, but rather a disk. Their margins are inrolled, and are not, in consequence, (a little) united by their edges or even connivent. In E. sparsiflora the sterile bracts are flat, quite rigid, connivent by their edges so as to form a distinct cup. The fertile bracts rather closely subtend the sterile ones, whereas in E. sparsiflora there is a distinct space between the two Kinds of bracts. Sterile whorl of bracts 4 1/2 mm. broad. Sterile whorl in E. sparsiflora 1 to 1 1/2 mm. broad.

Beds of winter pools.

Wolfskill,
nw. Solano Co.
May 8, 1924

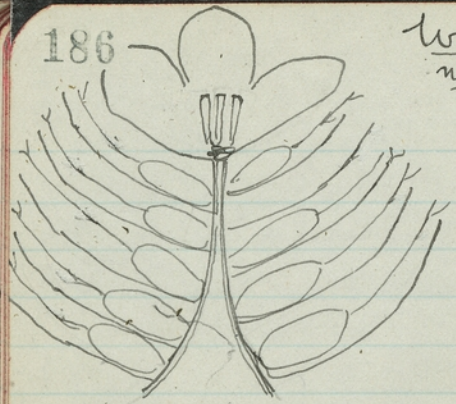

Diagram of head of
Wax coalescens
longitudinal median section.

– Altho it is such a dry year the flowering on the rolling gravelly plains north and east of Suisuney Creek is quite remarkable. Here is where the natives hold out the best against civilization and alien. Fine colonies of Calochortus luteus were everywhere, some 300 to 400 yards long, the stalks thick enough to make the place shimmy-gold in the sunshine.

Devils Gate, Putah Pass.
8 May 1924.

No. 10,408. Leptotaenia californica Nutt. Rocky banks Putah Creek.

No. 10,409. Senecio eurycephalus T+G. With 10,408.

No. 10,410. Cercis occidentalis Torr. Common; with 10,408.

The bushes are a beautiful sight now, the masses of crimson pods full grown hang in fine clusters as a foil to the green leaves.

Napa Co. Pope Creek, 8 May 1924.

No. 10,411. Rhus trilobata Nutt. West side Berryessa Valley near mouth of Pope Creek.

No. 10,412. Phacelia distans Bth. Pope Creek, sliding dirt hillside.

No. 10,413. Phacelia calycosa (Gray). Rocky canon sides, Pope Creek.

No. 10,414. Silene californica Dur. Canon flat.

- Winters is a very neat and clean little town - much cleaner and neater than the very much older town of Vacaville. All the natural or wild life has, however, largely disappeared. It was once set in lordly forests of Quercus lobata which stretched along the deep loam soil of the Putah borders. In the old days there were "camp-meetings" held in the fall of the year on the river bench - what a place it was for a boy naturalist in those years and how I luxuriated in it as with unwearied young legs every direction invited my interest.

We drive west from Winters to the Devil's Gate in Putah Pass. One of the sights there are the groves of Cercis occidentalis

on the river benches. We drive on into Berryessa Valley once covered entirely and still largely endowed with Quercus lobata, but the trees being cut a great deal.

No. 10,415. Wyethia helenioides (DC.) Nutt. Along Pope Creek.

E. Napa Co.

No. 10,416. Cornus glabrata Bth. The flowering is more attractive than the other species (C. californica). The flowers are clear white. Along the stream of Pope Creek it presented a fine appearance. The disk is distinctly, tho' not strongly 4-lobed; the lobes are opposite the petals. Pope Creek.

No. 10,417. Lomatium marginatum C.&R. var. purpureum J. This umbellifer grew on a sterile flat in Chiles Valley.

No. 10,418. Microseris douglasii with 10,417

Pope Valley, May 8, 1924.

= Dudleya caespitosa

No. 10,418a. Cotyledon laxa B. & W. Cañon sides, Pope Creek, May 8, 1924.

— A new drive of extermination is being waged against the Coyote in this region. It is wonderful what opprobious epithets are hurled against him, especially thief and coward. As to thief man cannot well, in decency, hurl that word at him. That word should be reserved for our Carnegies, Rockefellers, Stanfords and the like. Thievery practiced on a colossal scale, and under the hypocrisy of legal forms, is still thievery. Perhaps if the coyote drove off several thousand sheep or calves he would not be called a thief but a corporate operator or something like that. As to coward it is not seemly that man should hurl that term at him either. With his superior means of destruction to the

death it is hardly sporting. It may be that the coyote is not so very brave physically. Man is to be sure brave physically, the great majority show physical courage, especially when they move in mass. Physical courage, altho so highly praised in ballad and romance, is yet after all exceedingly common. On the other hand as to moral courage, often spoken of as backbone, the species man is lacking as to the vast majority. Few men have moral courage. The', as said, they still retain physical courage, doubtless retained from the primitive state, especially when moving in mass or pack. There seems to me, on the other hand, some reason for endowing the coyote with an attribute similar to moral courage. It requires something to stand out consistently against the concerted attack of man and win out as the coyote has so many times against a war of extermination, still yelping defiance and

and scorn at his hereditary foe. The coyote was here first. He naturally resents being run off his hunting grounds. He did not ask the white man to bring in sheep, but since he has, there is only one recourse and that is war. Sheep (Domestic) disturb the balance of nature. The coyote has also his place in the balance of nature.

With the Red Indian the coyote had a working relation, a modus vivendi. The Indian recognized this and adopted, with a certain high-mindedness, the Coyote into his colony of gods. The white man, ruthless, rampant, destructive, skinning the earth down to the bone wherever he goes and leaving it lifeless, with him there is only one thing and that is war. The grizzly has succumbed — but not yet the coyote. The coyote may succumb and pass out. Did you ever notice a gigantic anthill on the plain or in the forest? That all vegetation and other animal life has been brushed out of the area. So man, wherever he goes, establishes his gigantic anthills with its runways and excreta, poisoning and exterminating the primitive wild life.

Man is not "sporting" towards the animals. Read John Davidson's "Runable Stag", "Three hundred gentlemen able to ride", yes 300 men, 300 deerhounds, all in full pursuit of one poor stag!

The cry of the coyote is the last call on the frontier of the wilderness. The fact of the young man by Kipling tells how much of longing there is for wildness, for the wilderness, for the untamed places of the earth, where species are still living in a natural condition. The yelp of the coyote is the war-cry of these places, the places of the Red Gods.

Man has not changed much in all the ages; his brain capacity has

been much the same. But always, in historic time he has been a highly destructive animal.

It would be better for him physically and mentally did he spend more time with the wild elements. After three months in the open in the high Sierras, on my return one summer's end, sleeping for the first time in a room, that first night in a room I had night-mare, gasping for breath in my sleep!

No. 10,419. Vicia gigantea Hook.
Berkeley, Joyce M. Saunders.

— Umbellularia californica Nutt. Its leaves used in the tin-cans in which sardines are packed for market at Monterey by the packers as a substitute for Laurus nobilis, the European bay, says Mrs. Alma A. Mrs Weigart. — Jan. 19, 1925.

— Greene, E. L. Was most happy in his selection of specific and generic names: Navarretia mellita

— Trails. Reasons for locating of trails by Indians. cf. Stephen Powers, Indians of California, 1877.

— Lambert, J. B. Greene had a coll. of plants from him and named a new sp. lembertii. See Pittonia or Erythea. Congdon writes his name J. B. Lembert on label of Phacelia vallicola (U. C. Herb.)

— Douglas. D. A certain number of his Cal. plants imply coll. in the Mt. Diablo range. One of these is Phacelia phacelioides.

— Lobb, W. Collected Nama lobbii. He must, therefore, have been up fairly high in Sierras.

— Bolander, H. N. His collecting trips in Mendocino Co. Cf. Tracy in I. H. Sept. 19, '24.

— Linum Breweri Gray. Ran across a spm. coll. by myself May 28, 1884 on the Araquipa Hills, w. Solano Co. It is probably extinct on those hills now.

— I had been making some drawings of Rocks for the printer on account of cuts being slow from the engraver. The saw and hammer were still lying out when Professor C. B. Bradley came into my private laboratory and, glancing around, said: "This looks like a Carpinteria!" Which is very neat. — Feb. 2, 1925.

— Arctostaphylos patula Greene. When there is a good fall of snow on the ground, say 3 ft: or so, at the time this species is in bloom, then it is a tradition in the mountains of Shasta Co. that there will be a fine crop of berries. The berries flatten hogs. — Alma Jones Redigort, Jan. 31, 1925.

— Went to dinner last night at the Parishes. Dr. Philip Wing was there on his way home from Gray Herbarium. He said: The Gray Herbarium people and the N. Y. Bot. Garden people are on more

friendly terms nowadays than formerly due to personal contacts. I was surprised to find Dr. Britton so mild a little man. I had pictured a rather large aggressive type of personality. He is a millionaire in his own right. Professor Arnold is disgruntled because we do not accept, in California, certain of his segregates in Ranunculus and Juncus. He feels quite strongly about it. When I went to the Arnold Arboretum with Johnston Jones warned I must keep [from] my voice toned down and not speak in a loud manner at the herbarium. Jones was out there previously and on talking in his usual manner Wilson came out and called him down very severely. Yes, [in response to a remark from Mrs. Parish] he was quite short off and said nothing. ["Well, anyone who can squelch Jones is doing a good deal". This from Mrs. Parish.].

As to Jones I made up my

mind that, before Jones came, that we must get along. I simply could not bear it to have constant friction. And we do get along. He comes in and starts an argument and usually I do not answer it. I won't argue with him. That is the only way. There would be no end to it. He admits that the Jones Herbarium is ours [!!! bought from Jones by Pomona College] and that I can really do as I must about it. He is, however, continually proposing numberless things — it is impracticable for us to do or do just now. His Flora of the Great Basin will be two vols. He has one done now. About 150 illustrations. No. I have not seen the illustrations — pen-and-ink drawings. The area covered is from the Wasatch to the Sierra Nevada and from Canada to Mexico." [Munz had his usual sob-sister story

that no one was good to Jones — all of which is contradicted by his own difficulties with him. The Parishes were not beguiled by this. Mr. Parish remarked that Jones' hand was against every man and every man's hand against him. Mrs. Parish referred to the fact that his wife was obliged to leave him.] — Feb. 2, 1925

a. If Jones is a "good fellow", as Munz says, then his life should be a model to us in Botanical endeavor.

b. If such completely satisfying and favorable judgment is to be passed on Jones, then what is left for some others who have led very different lives?

c. A botanist should do his work without any thought of personality, without remembering or keeping in mind who did this and this, but keeping only to the printed record. But botanists

have not done that with Jones. They remember his personality and praise him for his errors, to avoid a barrage fire from him. Or, failing praise, he assaults them.

d. A botanist, I repeat, should work impersonally. If he does not do this his botanical judgments are warped and influences or prejudices consciously or unconsciously color his mind.

— Feb. 3, 1925.

— Thos. Bridges. Perhaps Ken sent duplicates of his collections to the Smithsonian Institution, since we must have received our set of Bridges plants from the Smithsonian. At least they bear the Smithsonian label. See p. 203

What a fine thing to have a species like Pentstemon bridgessii named for you! See my Field Book, herb. collections of this species, for notes on its occurrence in Sierra Nevada.

— Cont. from p. 155.

with no more effort than if one of us gave his friend $5.00 or $20.00. Dr. Baer said impressively: I have no notion as to the innocence or guilt of Mr. Doheney; there is just one man that knows whether he is guilty or no, and that man is Mr. Doheney.

That night Dr. Baer gave a great dinner to his friends, at the Hotel Huntington — about 400 covers. Men came to it from Chicago, New York, San Francisco. A distinguished gathering. He gives such a dinner annually.

The notes of this trip, p. 152 supra et seq. are made Aug. 24, 1927, from memory. This trip to Los Angeles is most interesting, most interesting, from meeting Mr. H. E. Huntington, from

 Pasadena, 29 Mar. '24.

seeing the Huntington paintings, the Huntington library, and the garden; from seeing and talking with so remarkable a character as Edw. Doheney and being guided through his wonderful palm collection by him; from personal acquaintance with Dr. Willis Baer, a remarkable man, as well as D.M. Linnard — all this and more I made no note of at the time in my field book except what is noted on p. 5 of vol. 41, which is nothing. It was a most amazing two or three days; and I would have sworn I wrote it out fully — but I can nowhere find it. — So I now set down the high lights of it. But at the time I could have listed the Huerting paintings, for these masters are familiar. —

— Cont from p. 200. Re. Bridges. No! Bridges plants went direct to the Cal. Smithsonian. from Cal.

Addresses. – Darrington

L.P.

– Mr. & Mrs. Steller, San Francisco.

– Mrs. Jackson, Stockton. Has used the Tree Book many years.

– S. L. Gillam, 1021 – Stock Exchange Bldg., T.